

REPORT BY THE STATE AUDITOR OF CALIFORNIA

**Review of the California Department of Toxic Substances
Control's Implementation of the Hazardous Waste Source
Reduction and Management Review Act of 1989**

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December 1, 1993

93018

The Governor of California
President pro Tempore of the Senate
Speaker of the Assembly
State Capitol
Sacramento, California 95814

Dear Governor and Legislative Leaders:

The Bureau of State Audits presents an audit report prepared under contract with Ernst & Young concerning the California Department of Toxic Substances Control's Implementation of the Hazardous Waste Source Reduction and Management Review Act of 1989. This report concludes that implementation of the Hazardous Waste Source Reduction and Management Review Act of 1989 has contributed along with other factors to a net reduction in the generation of hazardous waste for those who complied with the Act. However, the department needs to better identify generators and establish an information system to support implementation of the Act. Further, the department needs to establish a more effective compliance verification process.

Respectfully submitted,

A handwritten signature in cursive script, reading "Kurt R. Sjoberg", is positioned above the printed name and title.

KURT R. SJOBERG
State Auditor



FINAL

REPORT

State of California

Bureau of State Audits

93018

Review of the California Department of Toxic Substances Control's Implementation of the Hazardous Waste Source Reduction and Management Review Act of 1989

December 1, 1993

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Summary

Results in Brief The Hazardous Waste Source Reduction and Management Review Act of 1989, as enacted, was structured as an innovative, self-regulatory approach to reduce generation of hazardous waste in California (as opposed to employing a conventional, command-and-control framework). In a majority of cases for those generators who have complied with the Act's requirements, our findings indicate that the Act, and associated site review and hazardous waste source reduction planning process requirements, have:

- Motivated implementation of hazardous waste reduction measures over and above what otherwise would have been implemented
- Contributed in most cases to a net reduction in the generation of hazardous waste over and above what otherwise would have been achieved.

However, our findings also indicate that more than 20 percent of generators subject to the Act have not yet prepared a *Source Reduction Evaluation Review and Plan*. While various administrative and programmatic provisions of the Act have been adequately complied with by the Department, the Department has not established a data and information system as required by the Act, nor has the Department established an effective compliance verification process. Needs exist for the Department to (1) identify generators subject to the Act, (2) more fully communicate the Act's requirements and related technical support information to these generators, and (3) verify that generators have prepared their *Review and Plan*, and other required hazardous waste source reduction documents.

Additionally, our findings indicate that, irrespective of whether or not a *Review and Plan* has been prepared, many generators have established a hazardous waste source reduction program, and most organizations have reduced their generation of hazardous waste during the past two years. We also found that, although the Act and other environmental protection regulations have been important,

financial factors such as costs of hazardous waste disposal, and liabilities associated with hazardous waste disposal, generally have been more important in motivating hazardous waste source reduction efforts.

Finally, our findings indicate that the document certification process does not guarantee the integrity of source reduction documents which are prepared by generators. While more than 50 percent of documents appear to fully comply with the Act's requirements, about 35 percent of the documents appear to only partially comply with these requirements, and about 11 percent are clearly incomplete or deficient in most, or all, areas. However, *Review and Plan* quality has not yet been correlated with a change in the quantity of hazardous waste generated and, moreover, *Review and Plan* quality may not necessarily be a determinant of whether the process proscribed by the Act contributes to (1) implementation of hazardous waste source reduction measures, or (2) a net reduction in generation of hazardous waste. Furthermore, it is possible that strict regulatory enforcement of source reduction program documentation requirements could be counter-productive in terms of motivating generators to identify and implement hazardous waste source reduction measures (which is the overall goal of the Act).

Within the above context, we found that performance of the Department in implementing the Act needs improvement in the following areas:

- Requesting and reviewing larger numbers of source reduction documents prepared by a broader range of generators in order to further support and encourage their source reduction efforts, provide technical assistance, and facilitate transfer of technologies (where appropriate)
- Assuring that most (or all) generators subject to the Act initiate implementation of available hazardous waste source reduction measures determined to be technically feasible and economically practicable.

With respect to implementation of performance improvement initiatives in these areas, Department staff should continue to emphasize technical assistance and facilitation roles, and generator

implementation of source reduction measures (as opposed to attempting enforcement of strict compliance with documentation requirements as an end in itself). The Act was only implemented within the past two years and, with improvement in the areas noted, effectiveness of the Act may be increased in terms of achieving further reductions in the generation of hazardous waste.

Background

The California Department of Toxic Substances Control's primary responsibilities in carrying out the Act include (1) establishing regulations to carry out the Act, (2) providing technical assistance to generators who are subject to the Act, and (3) reviewing source reduction documents prepared by generators.

Generators which, by site, routinely generate through ongoing process and operations more than 12,000 kilograms (13.2 tons) of hazardous waste during a calendar year, or more than 12 kilograms (26 pounds) of extremely hazardous waste during a calendar year, are subject to the Act. The Act requires that generators periodically prepare the following documents:

- Source Reduction Evaluation Review and Plan (*Review and Plan*) and accompanying Source Reduction Evaluation Review and Plan Summary (*Plan Summary*)
- Hazardous Waste Management Performance Report (*Performance Report*) and accompanying Hazardous Waste Management Performance Report Summary (*Report Summary*).

The Act requires that the *Review and Plan* prepared by generators (1) clearly set forth the technically feasible and economically practicable source reduction measures to be taken with respect to each identified hazardous waste stream, with timetables for making reasonable and measurable progress, and (2) properly documents the rationale for rejecting available source reduction measures. The Act requires that the *Performance Report* provide an assessment of the effect of each hazardous waste measure implemented upon the generation and management of hazardous waste.

Methodology A multi-dimensional approach was used to perform the audit which included: interviewing Department staff, representatives of other government organizations and industry, and environmental interest groups; developing and disseminating a mail survey to more than 2,000 identified generators; compiling and analyzing responses to the mail survey; conducting telephone follow-up surveys of more than 100 selected generators; analyzing 80 hazardous waste source reduction planning documents provided to us by generators along with their completed mail survey; and collecting and analyzing a variety of other information needed to evaluate the performance of the Department in specific areas.

All of these efforts were directed toward assessing the performance of the Department in implementing the Act, and to provide data and information to the Legislature regarding:

- Effectiveness of the *Review and Plans* in achieving a net reduction in the generation of hazardous waste
- Regulatory and enforcement activities of the Department, and their effectiveness in accomplishing generator compliance with the Act's requirements
- The effectiveness of the document certification process in guaranteeing integrity of the various documents which generators are required to prepare
- The frequency of third party requests for generator certification, and the effectiveness and efficiency of the generator certification process in providing timely information to the public.

**Implementation Of
The Act Has
Contributed Along
With Other
Factors To A Net
Reduction In The
Generation Of
Hazardous Waste
For Those Who
Have Complied
With The Act**

From results of the mail survey disseminated to generators subject to the Act, it appears the Act is accomplishing its intended purpose of reducing generation of hazardous waste at the source for those who have complied with the Act. Respondents to the mail survey indicated that the Act, as well as a number of other factors, have motivated their hazardous waste source reduction efforts during the past two years (i.e., costs and liabilities associated with hazardous waste disposal). For those respondents who have complied with the Act by preparing a *Review and Plan*, a majority indicated the Act motivated their organization to implement source reduction measures, over and above what otherwise would have been implemented at the site. These same respondents further indicated they are implementing source reduction measures as a result of the Act, and that (in most cases) implementation of these measures has resulted in a net reduction in the generation of hazardous waste at the site.

**The Department
Has Neither
Adequately
Identified
Generators
Nor Established
An Information
System
To Support
Implementation
Of The Act**

A *Review and Plan* has not yet been prepared by more than 20 percent of generators surveyed who were subject to the Act's requirements. In the majority of cases these generators were not aware of the Act, misunderstood the Act's requirements, or were following an in-house plan but had not yet complied with the Act's requirements.

With a framework of self-regulation, the Act defines certain areas for which the Department has responsibility. These responsibilities include various regulatory and technical assistance services and activities, and establishment of a data and information system which supports needs of the Program in these and other areas. To date, the Department has not established such a data and information system which, at a minimum, should contain an initial master list of generators potentially subject to the Act. The absence of a master list of generators captured by the Act limits the effectiveness of the Program in various areas and constrains overall Program effectiveness. Development of such a list would improve the Department's ability to fully communicate the Act's requirements to all of the regulated population. Furthermore, development of such a list would improve effectiveness of the Program in several other related areas (e.g., disseminating updated information, providing technical assistance, and performing technology transfer services).

**The Department Has
Not Established An
Effective Compliance
Verification Process
And The Document
Certification Process
Does Not In Itself
Guarantee
Compliance**

Only a small proportion of generators contacted by the Department during the past two years actually had their source reduction documents reviewed for compliance purposes. Although generators determined not to be in compliance with provisions of the Act were issued a *Notice of Noncompliance*, revised documents from these generators were not requested or obtained by the Department within timeframes required by the Act. Also, the Department focused its compliance verification and associated document review efforts on larger businesses, although results of the mail survey of generators indicate smaller businesses are less likely to prepare a *Review and Plan*, and it is likely that smaller businesses have a greater need for the Department's technical assistance services.

In addition, results of the analysis of *Review and Plans* received from generators, along with their completed mail survey, show that the certification process does not guarantee compliance with mandated document content requirements. Nonetheless, the Department should continue its current emphasis on providing technical assistance services, facilitating transfer of technologies, and encouraging generator implementation of source reduction measures (as opposed to attempting strict compliance with documentation requirements as an end in itself). With the Act's latitude in allowing the Department to request any generator's *Review and Plan*, significant improvements are possible in the effectiveness with which Department staffing resources are utilized for compliance verification and related technical assistance purposes.

**Various
Administrative and
Programmatic
Provisions Of The Act
Have Been Adequately
Complied With By The
Department**

The Department has adequately complied with various administrative and programmatic provisions of the Act. Specifically, the Department adopted regulations to carry out the Act in August, 1991. In addition, through seminars and workshops, the Department has coordinated activities of all State agencies with responsibilities and duties relating to hazardous waste. The Department has established procedures for exempting generators with waste streams that have no source reduction opportunities. Regulations also were adopted to ensure trade secret protection of generator documents. As required, the Department adopted a *Review and Plan, Plan Summary, Performance Report* and *Performance Report Summary* format. In addition, the Department established a good technical and research assistance program which included seminars and

workshops, publications, and a *Guidance Manual*. Finally, the Department responded effectively to a limited number of requests by the public for certification of generators.

Recommendations The findings of this audit indicate the Act is accomplishing its intended purpose for those who are complying with the Act and, therefore, all interest groups should continue to support implementation of the Act's provisions. However, the Department needs to improve its implementation of the Act in the following areas:

- A high priority should be given by the Department to developing an initial master list of generators potentially subject to the Act. Then, the Department should develop an effective program which assures all identified generators are fully informed of the Act's requirements. This technical assistance program would also encourage generators to fulfill the Act's requirements.
- The Department should streamline the process used for requesting and reviewing generator documents, request source reduction documents from a broader range of generators, significantly increase the number of reviews performed of these documents, and require submittal of revised documents on a timely basis when documents are determined not to be in compliance with the Act's requirements.
- The Department should establish an information system to support the effective and efficient implementation of the Act in these and other areas (initially by developing a master list of generators potentially subject to the Act).

Finally, Department staff should continue to emphasize technical assistance and facilitation roles, and generator implementation of source reduction measures (as opposed to attempting enforcement of strict compliance with documentation requirements as an end in itself). With improvement in the areas noted, effectiveness of the Act may be increased in terms of achieving further reductions in generation of hazardous waste.

**Summary of California
Environmental
Protection Agency
Comments**

In a written response to this report, the California Environmental Protection Agency indicated that it was pleased that the Program has been successful in achieving the desired results in terms of motivating generators to implement source reduction measures. Also, the Agency acknowledged needs to (1) develop a more effective compliance review process, and (2) establish a data base to assist with technology transfer efforts. However, the Agency took exception with two of the audit findings. First, the Agency commented that, due to the absence of available information at the beginning of the Program regarding on-site waste treatment activities, development of a "master list" of generators would have been of little value for purposes of performing outreach and call-in activities. Second, the Agency commented that, if it had not been forced to re-direct Program staff in response to enactment of S.B. 1726 in 1992, then (1) the data base would have been comprehensive by now, and (2) significantly more source reduction documents would have been called-in and reviewed, and compliance follow-up would have been more complete.

Introduction

Background Chapter 1218, Statutes of 1989, established the *Hazardous Waste Source Reduction and Management Review Act of 1989* (the Act) which required the Department of Health Services (DHS) establish a program for hazardous waste source reduction (the Program). Subsequent legislation consolidated this and other hazardous waste related programs within the Department of Toxic Substances Control (the Department) under the State's Environmental Protection Agency (Cal/EPA).

Within the Department, responsibility for establishing the Program has been assigned to the Department's Source Reduction Unit within the Pollution Prevention Branch of the Department's Office of Pollution Prevention and Technology Development. Authorized permanent full-time staffing for the Department's Source Reduction Unit consists of a total of six positions, as follows:

- 1 Senior Waste Management Engineer
- 2 Associate Waste Management Engineers
- 2 Waste Management Engineers
- 1 Hazardous Materials Specialist.

Program-related clerical and administrative support services are provided primarily by a centralized clerical support unit.

Applicability Initially, the Act applied only to generators who, by site, routinely generate through ongoing processes and operations, more than 12,000 kilograms (13.2 tons) of hazardous waste during a calendar year, or more than 12 kilograms (26 pounds) of extremely hazardous waste during a calendar year. Regulations subsequently adopted by the Department specified that the following hazardous waste streams

should not be included in calculating the volume (or comparable weight) of waste produced at a site, and are not subject to the Act:

- Automotive fluids and lead acid batteries
- Household hazardous waste streams and wastes from household collection events
- Wastes separated at community landfills
- Waste pesticides and pesticide containers collected by County agricultural commissioners
- Spent munitions and ordnance
- Decommissioned utility poles.

Also, the following hazardous waste streams that are not routinely generated should not be included in calculating the volume (or comparable weight) of waste produced, and are not subject to the Act:

- Waste from site clean-up and mitigation activities, including remedial investigations, and samples and evidence from enforcement actions
- Asbestos and PCBs
- Formation fluids and solids from oil, gas, and geothermal exploration and field development
- Demolition waste/major renovation.

Finally, waste generated from emergency response actions and medical waste are exempted from the Act, and a generator may petition the Department in writing to exempt other hazardous waste streams.

Definition of Source Reduction	The Act defines source reduction as any action which causes a net reduction in the generation of hazardous waste, or any action taken before hazardous waste is generated that results in a lessening of properties which cause it to be classified as a hazardous waste. To
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the extent the measure reduces, avoids, or eliminates generation of hazardous waste, the Act further provides that source reduction includes the following:

- Input changes (e.g., a change in raw materials or feedstocks)
- Operational improvements (e.g., improved site management)
- Production process changes (e.g., a change in the process, method, or technique used to produce a product or a desired result, including the return of materials or their components for re-use within existing processes or operations)
- Product reformulation (e.g., changes in design, composition, or specifications of end products, including product substitution).

**Source Reduction
Evaluation
Review and Plan
(Review and Plan)**

The Act required that, on or before September 1, 1991, and every four years thereafter, each generator conduct a source reduction evaluation review and prepare a plan, including a timetable for making reasonable and measurable progress towards implementation of hazardous waste source reduction measures selected by the generator. Additionally, the Act required that the *Review and Plan* include:

- An identification of all routinely generated hazardous waste streams which result from ongoing processes or operations that have a yearly volume exceeding 5 percent of the total yearly volume of hazardous waste generated at the site or, for extremely hazardous waste, 5 percent of the total yearly volume of extremely hazardous waste generated at the site
- For each identified hazardous waste stream, an estimate of the quantity of hazardous waste generated, and an evaluation of a range of potentially viable source reduction approaches available to the generator

- A specification of (and a rationale for) the technically feasible and economically practicable source reduction measures which will be taken by the generator with respect to each identified hazardous waste stream, and an evaluation and quantification (to the extent practicable) of the effects of the chosen source reduction measures on emissions and discharges to air, water, or land.

Also, the *Review and Plan* must fully document the generator's rationale for rejecting any identified source reduction approach.

The *Review and Plan* must be certified by a Registered Professional Engineer who has demonstrated expertise in hazardous waste management, an individual who is responsible for the processes and operations of the site, or by a Registered Environmental Assessor who has demonstrated expertise in hazardous waste management. The Act requires that the certification state that the *Review and Plan* meets all of the following requirements:

- Addresses each hazardous waste stream, and associated source reduction approach, as specified by the Act
- Clearly sets forth the technically feasible and economically practicable source reduction measures to be taken with respect to each hazardous waste stream, with timetables for making reasonable and measurable progress, and properly documents the rationale for rejecting available source reduction measures
- Does not merely shift hazardous waste from one environmental medium to another.

A generator may elect not to implement a selected measure only if the generator subsequently determines the selected measure is not technically feasible or economically practical, or if attempts to implement the measure reveal the measure would result in an increase in generation of hazardous waste, an increase in release of hazardous chemicals to other environmental media, adverse impacts on product quality, or a significant increase in the risk of an adverse impact to human health or the environment. If a generator elects not to implement a selected measure, the *Review and Plan* must be amended to reflect this rejection and to properly document the rationale for the rejection.

The Act requires that, on or before September 1, 1991, and every four years thereafter, each generator also prepare a Source Reduction Evaluation Review and Plan Summary (*Plan Summary*) The Act contains a number of specific content requirements for this document. As with the *Review and Plan*, the *Plan Summary* must be certified, and amended as required to reflect any rejections of measures previously identified for implementation.

**Hazardous Waste
Management
Performance Report
(Performance Report)**

The Act required that, on or before September 1, 1991, and every four years thereafter, each generator prepare a *Performance Report* documenting hazardous waste management approaches implemented by the generator. For performance reporting purposes, the Act specified that the *current reporting year* is the calendar year immediately preceding the year in which the report is prepared. The Act also stated that the *baseline year* must be the *current reporting year* except that, for the initial *Performance Report*, a generator could select either 1990 as the *baseline year* or any calendar year prior to 1990 for which substantial hazardous waste generation or on-site or off-site management data was available.

The Act requires that a *Performance Report* include all of the following:

- For each hazardous waste stream identified in the *Review and Plan*, an identification of the quantity of hazardous waste managed, both on-site and off-site for the baseline year and the current reporting year
- For each year since the baseline year, an assessment of the effect of each hazardous waste management measure implemented upon the generation and on-site and off-site management of hazardous waste
- A description of factors that have affected hazardous waste generation and on-site and off-site hazardous waste management since the baseline year (e.g., changes in business activity, changes in waste classification, and natural phenomena).

Also, the *Performance Report* must be certified by a Registered Professional Engineer who has demonstrated expertise in hazardous waste management, an individual who is responsible for the processes and operations of the site, or by a Registered Environmental Assessor who has demonstrated expertise in hazardous waste management. The Act requires that the certification state that the *Performance Report* identifies factors that affect the generation and on-site and off-site management of hazardous wastes, and summarizes the effect of those factors on the generation and on-site and off-site management of hazardous waste.

The Act requires that on or before September 1, 1991, and every four years thereafter, each generator also prepare a Hazardous Waste Management Performance Report Summary (*Report Summary*). The Act contains a number of specific content requirements for this document. As with the *Performance Report*, the *Report Summary* must be certified.

Compliance Monitoring and Enforcement

The Act requires that, on or before September 15, 1991, and every two years thereafter, the Department shall:

- Select two categories of generators, by Standard Industrial Classification (SIC) Code, with the potential for source reduction
- Request copies of the *Review and Plan*, *Plan Summary*, *Performance Report*, and *Report Summary* from selected generators within the selected categories
- Examine the requested documents to ensure compliance with associated format and content provisions of the Act.

In order to assure generator compliance with applicable provisions of the Act, the Act provides that specified enforcement actions may be taken by the Department, including imposition of civil penalties if the Department determines:

- A generator has not complied with specified planning or reporting requirements, or the documents are incomplete or deficient

- A generator fails to implement a selected measure specified in the *Review and Plan* or *Plan Summary* without demonstrating that the measure is not technically feasible or economically practicable.

Data and Information System The Act required that, on or before January 1, 1991, the Department establish a data and information system to be used by the Department for developing the categories of generators from which to request source reduction planning and performance reporting documents for compliance monitoring and enforcement purposes. In establishing the data and information system, additional data and information needs of the Program also were required to be identified (e.g., disseminating information about hazardous waste related regulatory requirements to generators that have inadequate technical and financial resources for obtaining such information). Also, to the extent practicable, data management expertise, resources, and forms of already established environmental protection programs were required to be used by the Department (e.g., the Department's Manifest System which captures site location, mailing address, waste code and quantity, and other information regarding shipments of hazardous materials within California).

Other Department Responsibilities The Act required that the Department:

- Coordinate activities of all state agencies with responsibilities and duties relating to hazardous waste, and promote coordinated efforts to the fullest extent possible
- Adopt regulations needed to:
 - Carry out the Act
 - Exempt generators from requirements of the Act where the Department determines no source reduction opportunities exist for the generator

- Ensure trade secrets are utilized only for specified purposes, and not disseminated without consent of the generator
- Adopt formats to be used by generators for completing the *Review and Plan*, *Plan Summary*, *Performance Report*, and *Report Summary*
- Establish a technical assistance and research program to assist generators in identifying and applying methods of source reduction and other hazardous waste management approaches
- Establish a process for certifying, upon receipt of a request for certification from a third party, that a generator has properly completed the *Review and Plan*, *Plan Summary*, *Performance Report*, and *Performance Report Summary*.

Subsequent Legislation Subsequent to the 1989 enactment of the original Act, SB 1726 (Chapter 853, Statutes of 1991) established a statewide goal to reduce generation of hazardous waste by 5 percent per year from 1993 to 2000, and amended the Act in several significant ways, as outlined below:

- The definition of a generator of hazardous waste was reduced in order to include sites which routinely generate more than 5,000 kilograms (5.5 tons) of hazardous waste per year (rather than 12,000 kilograms per year as specified in the original Act)
- Additional requirements were placed on generators, including the need to establish four-year hazardous waste reduction goals and to report progress annually on a form to be developed by the Department
- The contents of the Department's first biennial progress and performance report to the Legislature were modified, and the date by which the report must be completed was changed to July 1, 1994 (rather than July 1, 1993 as specified in the original Act).

**Scope and
Methodology**

The overall goal of this audit was to assess performance of the Department in implementing the Act, and to provide data and information to the Legislature regarding:

- Effectiveness of the *Source Reduction Evaluation Reviews and Plans* in achieving a net reduction in the generation of hazardous waste
- Regulatory and enforcement activities of the Department, and their effectiveness in accomplishing generator compliance with the Act's requirements
- The effectiveness of the document certification process in guaranteeing integrity of the various documents which generators are required to prepare
- The frequency of third party requests for generator certification, and the effectiveness and efficiency of the generator certification process in providing timely information to the public.

At the time of the audit, the Department had not yet completed development of new regulations needed to implement modifications to the Act contained in SB 1726. Therefore, audit efforts focused only on the Department's performance as it related to implementation of provisions contained in the original Act which were not modified by subsequent legislation. Also, because *Performance Reports* will not be available until 1995 which would document the impacts of implementation of source reduction measures identified in the *Reviews and Plans* prepared by generators **subsequent to** enactment of the Act, audit efforts focused primarily on Program components related to preparation of *Reviews and Plans* (and accompanying *Plan Summaries*) versus Program components related to preparation of *Performance Reports* (and accompanying *Report Summaries*).

Interviews Initially, audit efforts focused on interviewing Department executives and management and collecting and reviewing relevant background information in order to develop an overall understanding of the Program in terms of:

- Governing statutes, regulations, policies, and procedures
- Number, composition, and organization of staffing resources
- Organization and flow of work, and day-to-day operating practices
- Data and information support system capabilities, reliability, and use
- Document filing systems, and contents of these files.

Concurrently, we scheduled and conducted interviews with representatives of the U.S. EPA and other State agencies involved with hazardous waste generators, or concerned with generation of hazardous waste, including the following:

- Integrated Waste Management Board
- Water Resources Control Board
- Air Resources Board
- Cal/EPA.

Also, we scheduled and conducted interviews with representatives of several industry and environmental interest groups, including:

- California Manufacturers Association
- California Public Interest Research Group
- Toxic Assessment Group
- Environmental Defense Fund
- Sierra Club.

**Master List of
Generators**

Subsequently, audit efforts focused primarily on identifying as many specific generators as practicable which generated at least 13.2 tons of hazardous waste during 1991, and were required to prepare a *Review and Plan* (and accompanying *Plan Summary*) by not later than September 1, 1991. To the extent possible from the information available to us through the Department's Manifest System, we attempted to exclude, from our calculation of the quantity of hazardous waste generated, any waste categories which had been exempted by the Department's regulations. However, our ability to identify waste categories at the level of detail necessary was limited by the Manifest System's waste coding structure and the quality of shipping information which generators provide to the Department. Our efforts to develop a master list of generators subject to the Act represented the first such formal structured attempt ever to define the regulated population.

Mail Survey Instrument

Concurrent with development of the master list of generators, we developed and field tested a mail survey instrument which consisted of about 20 fixed format, and several open-ended questions. A copy of the survey instrument and accompanying transmittal letter is provided in **Appendix A** and **Appendix B**. The survey instrument was structured primarily to develop defensible statistical data regarding (1) the level of generator compliance with the Program's site review and planning requirements, and (2) for generators that have complied with these requirements, the extent to which identified source reduction measures have actually been implemented and contributed to a net reduction in generation of hazardous waste. Additionally, we collected information regarding (1) factors which have motivated hazardous waste source reduction efforts, (2) Department performance assisting generators to prepare their *Review and Plan*, and achieve a net reduction in generation of hazardous waste, and (3) costs to prepare the *Review and Plan*.

Initially, surveys were mailed to all 2,316 generators which were able to be identified primarily from the Department's Manifest System. One-half of the surveys disseminated were **non-anonymous** (i.e., we requested identification of the respondent and, if available, that they provide us with a copy of their *Review and Plan* for a specified site). To control for certain types of potential response bias, such as a lower response rate by generators which have not complied

with the Act's requirements, the other half of the surveys disseminated allowed the respondent to remain **anonymous** (in which case it was not possible for us to identify specific respondents or non-respondents). Non-anonymous and anonymous surveys were assigned to specific generators on a random basis.

Mail Survey Response Excluding 247 surveys which were returned because they were not deliverable to the mailing address obtained from the Department's Manifest System, 2,069 surveys were disseminated. Surveys were returned by 753 of the 2,069 generators (36 percent). However, 214 of these respondents (28 percent) indicated that less than 13.2 tons of hazardous waste (as defined by the Department's regulations) were routinely generated during 1991. Therefore, these generators were not subject to the Act's requirements, and also were excluded from all compilations and analyses of survey responses. Also excluded from all compilations and analyses of survey responses were 31 other surveys (e.g., insufficiently complete surveys, surveys received from businesses or facilities which are closed, surveys which referenced void EPA identification numbers, etc.).

A total of 508 completed surveys were received from respondents who indicated that at least 13.2 tons of non-exempted hazardous waste was generated at the specified site during 1991. Survey responses were key entered and compiled using automated systems. Response summaries were prepared for non-anonymous respondents, anonymous respondents, and for all respondents on a combined basis. A summary of the response compilations is provided in **Appendix C**. A comparison of the compilations shows that there were no significant differences in the responses of anonymous and non-anonymous respondents. Response summaries also were prepared in work paper form for small organizations (i.e., 500 or fewer employees, including affiliated and related organizations), large organizations (i.e., more than 500 employees, including affiliated and related organizations), and for all small and large organizations combined.

Follow-Up Telephone Surveys

To further control for certain types of potential response bias, we conducted a telephone survey of a random sample of 50 **non-respondents** to the *Non-Anonymous Survey*, and compared their responses to those of **respondents** for the *Non-Anonymous Survey*. A summary of the responses obtained as part of this telephone survey of non-respondents is provided in **Appendix D**. A comparison of these responses to those of the respondents to the mail survey shows that there were no significant differences in their responses.

Additionally, where explanatory comments were not provided, we conducted a telephone follow-up survey of **respondents** to the *Non-Anonymous Survey* who indicated that (1) at least 13.2 tons of hazardous waste was generated during 1991, and (2) a *Review and Plan* for the specified site had not yet been prepared. The purpose of requesting explanatory comments and performing this follow-up telephone survey was to determine reasons why some generators of more than 13.2 tones of hazardous waste during 1991 had not yet complied with the Act's requirements related to preparation of a *Review and Plan*. A total of 57 respondents were included in this analysis.

Analysis of Review and Plan Format, Content, and Integrity

Also, about 80 percent of respondents to the *Non-Anonymous Survey* indicated they had prepared a *Review and Plan* for the specified site, and nearly one-half of these respondents provided us with a copy of this document. In order to characterize their format, content, and integrity, we performed a structured review of these documents. A total of 80 documents were reviewed and characterized on an aggregate basis as part of this analysis.

Other Assessments of Department Performance

Finally, we collected data and performed various other analyses and assessments of the Department's performance in carrying out the Act, including the following key Program components:

- Coordination of activities with other State agencies
- Adoption of regulations to carry out the Act, exemption of generators where no source reduction opportunities

exist, and ensuring trade secrets are utilized only for specified purposes and not disseminated

- Adoption of formats to be used by generators for preparing the *Review and Plan*, *Plan Summary*, *Performance Report*, and *Report Summary*
- Establishment of data and information support systems
- Establishment of effective regulatory and enforcement processes
- Establishment of an effective and efficient process for certifying generators
- Establishment of a technical assistance and research program.

Where appropriate, we augmented process-specific profile information with additional process-specific analyses in order to:

- Develop a more complete understanding of the process on which to base our assessment
- Better, or more completely, characterize identified deficiencies
- Assess specific effectiveness dimensions (e.g., timeliness, quality, cost, etc.)
- Develop defensible recommendations for improvement.

For example, in the case of the Department's compliance monitoring and enforcement process, we reviewed the Department's compliance monitoring and enforcement-related documentation, and conducted follow-up interviews with Department staff involved in the process. In the case of the generator certification process, we collected and analyzed process characterization and effectiveness information (e.g., frequency of requests, response times, etc.), and interviewed Department staff involved in the process. In the case of the Department's research and technical assistance process, we interviewed Department staff involved in the process, collected and reviewed Department publications, and reviewed information regarding the types and frequency of seminars and workshops conducted, and attendance levels at these events.

Chapter 1 Implementation Of The Hazardous Waste Source Reduction And Management Review Act Of 1989 Has Contributed Along With Other Factors To A Net Reduction In The Generation Of Hazardous Waste For Those Who Have Complied With The Act

Chapter Summary Generator responses to the mail survey were used to evaluate the Act's effect on implementation of source reduction measures and the overall contribution of the Act to a net reduction in the generation of hazardous waste. Also from generator responses, a comparison was made of the Act to other factors which may have motivated hazardous waste source reduction efforts.

Background Surveys were mailed to all 2,316 generators which were able to be identified primarily from the Department's Manifest System. Excluding 247 surveys which were returned because they were not deliverable to the mailing address indicated, 2,069 surveys were disseminated. A total of 753 responses were received. Of these 753 responses, only 508 respondents (68 percent) indicated their subject facility generated greater than 13.2 tons of hazardous waste in 1991 (28 percent indicated that fewer than 13.2 tons of hazardous waste was generated during 1991, and 4 percent of the surveys were excluded from our analyses for other reasons). Since the 508 generators were subject to provisions of the Act (their 1991 hazardous waste volume was greater than 13.2 tons), the responses of these generators were the subject of our analysis of the Act's effectiveness.

Not all of the 508 respondents prepared a *Review and Plan* for their facility. A total of 397 (78 percent) of the 508 respondents indicated they prepared a *Review and Plan*. Therefore, only these 397 respondents could respond to questions concerning the effect of the Act on their hazardous waste source reduction efforts. These 397 respondents were asked to estimate the cost to prepare the document as well as to indicate whether their facility had a hazardous waste program in place prior to completing the *Review and Plan*. These

respondents also indicated whether the Act (and associated site review and source reduction planning process requirements) had motivated their organization to implement hazardous waste reduction measures, over and above what otherwise would have been implemented, at the subject facility. In addition, the respondents were asked to what degree they implemented source reduction measures identified in the *Review and Plan* and to what extent the measures identified in the *Review and Plan* contributed to a net reduction in the generation of hazardous waste.

In order to assess the impact of other factors in motivating generators to reduce generation of hazardous waste, we directed a question to all respondents who had reduced their hazardous waste generation (including those who did not prepare a *Review and Plan*). A total of 456 of the 508 generators (90 percent) indicated the generation of hazardous waste at the subject facility had been reduced. These generators were asked to evaluate the importance of the following six factors in motivating their hazardous waste source reduction efforts during the past two years:

- Air Quality Regulations
- California's Hazardous Waste Source Reduction and Management Review Act
- Cost of Hazardous Waste Disposal
- Liabilities Associated With Hazardous Waste Disposal
- Water Quality Regulations
- Worker Health and Safety Regulations.

In addition, these respondents identified and evaluated additional factors which motivated their hazardous waste source reduction efforts.

**Several Factors Have
Motivated Hazardous
Waste Source
Reduction Efforts**

Of the 397 respondents indicating a *Review and Plan* for the subject facility had been prepared, 222 respondents (56 percent) indicated the Act (and associated site review and source reduction planning process requirements) motivated their organization to implement hazardous waste reduction measures over and above what otherwise would have been implemented. However, 169 respondents (43 percent) indicated the Act (and associated site review and source reduction planning process requirements) had not motivated their organization to implement hazardous waste reduction measures. The remaining one percent (1 percent) of generators did not respond.

It should be noted that 260 of the 397 respondents (65 percent) indicated a hazardous waste reduction program was in place at the subject facility prior to preparation of the *Review and Plan*, compared to 34 percent who indicated a hazardous waste reduction program was not in place prior to preparation of the *Review and Plan* (again, the remaining one percent (1 percent) indicated "not-applicable" to the question). It appears that a majority of generators had a program in place prior to preparing a *Review and Plan*.

Of the 456 respondents who indicated generation of hazardous waste at the subject facility had been reduced, a total of 306 (67 percent) indicated the Act was *Very Important* (21 percent) or *Important* (46 percent) in motivating their hazardous waste source reduction efforts in the last two years. At least 67 percent of the 456 respondents also indicated air quality regulations, water quality regulations, and worker health and safety regulations were *Very Important* or *Important* in motivating their hazardous waste source reduction efforts. However, higher proportions (about 90 percent) of the 456 respondents indicated costs of hazardous waste disposal and liabilities associated with hazardous waste disposal were *Very Important* or *Important*, and most of these respondents indicated these financial factors were *Very Important*. Other factors most frequently identified by respondents as *Very Important* in motivating hazardous waste source reduction efforts included internal organizational mandates, production process changes, and cost reduction programs.

The mail survey responses indicate the Act (and associated site review and source reduction planning process requirements) is motivating hazardous waste source reduction efforts among the regulated population at a level about equal to air quality, water quality, and worker health and safety regulations. However, financial factors such as cost of hazardous waste disposal and liabilities associated with hazardous waste disposal appear relatively more important in motivating hazardous waste source reduction efforts.

**Contributions Of The
Act To A Net
Reduction In The
Generation Of
Hazardous Waste**

A majority of the 397 respondents who indicated a *Review and Plan* had been prepared also indicated their organization either has *Fully* (32 percent) or *Moderately* (50 percent) implemented the hazardous waste reduction measures included in the *Review and Plan*. Only 69 of the 397 respondents (17 percent) indicated hazardous waste reduction measures identified in the *Review and Plan* had been implemented to only a *Limited* extent, or *Not at All*. The remaining one percent (1 percent) did not respond to the question.

In addition, a majority (56 percent) of the 397 respondents indicated implementation of source reduction measures included in the *Review and Plan* had contributed *Significantly* (15 percent) or *Moderately* (41 percent) to a net reduction in generation of hazardous waste (at the subject facility) over and above what otherwise would have been achieved. An additional 120 respondents (30 percent) indicated implementation of the identified source reduction measures had made a *Minor Contribution* to a net reduction in generation of hazardous waste. Only 50 (13 percent) of the 397 respondents indicated implementation of identified source reduction measures had made *No Contribution At All* to a net reduction in generation of hazardous waste.

Estimated costs incurred by respondents to prepare a *Review and Plan* appear relatively low for most respondents. A majority (54 percent) of respondents indicated costs incurred to prepare the *Review and Plan* were less than \$10,000. Only 13 percent of respondents indicated *Review and Plan* costs of more than \$25,000.

Conclusion Based upon results of the survey of generators, the Act appears to be accomplishing its intended purpose of reducing generation of hazardous waste at its source for those who have complied with the Act. In a significant number of instances (34 percent of those that prepared a *Review and Plan*), a hazardous waste source reduction program did not exist prior to generators preparing the *Review and Plan* prescribed by the Act. Furthermore, a majority of 397 generators who responded to our questionnaire and indicated a *Review and Plan* had been prepared, also indicated the Act (and associated site review and source reduction planning process requirements) motivated their organization to implement hazardous waste reduction measures over and above what otherwise would have been implemented. A majority of generators which have achieved a net reduction in generation of hazardous waste also indicated the Act and other environmental protection regulations were *Very Important* or *Important* in motivating their hazardous waste source reduction efforts during the past two years. However, financial factors such as costs and liabilities associated with hazardous waste disposal appear relatively more important in motivating hazardous waste source reduction efforts.

Finally, a majority of generators who responded to the survey and indicated a *Review and Plan* had been prepared, also indicated their organization has *Fully* or *Moderately* implemented the hazardous waste reduction measures included in their *Review and Plan*. Among these generators, implementation of these identified source reduction measures has contributed *Significantly* or *Moderately* to a net reduction in generation of hazardous waste over and above what otherwise would have been achieved.

Chapter 2 The Department Has Neither Adequately Identified Generators Nor Established An Information System To Support Implementation Of The Act

Chapter Summary This chapter presents additional results of the mail survey to generators, and of the follow up survey to generators who indicated they did not comply with the Act. Findings from these surveys were used to ascertain the level of generator compliance with provisions of the Act and an understanding of why some generators have not yet complied with the Act's requirements. In addition, we present audit findings related to the Act's requirement that the Department establish an information system to support implementation of the Act.

Background As part of the mail survey of generators, respondents were asked to estimate the quantity of hazardous waste which was routinely generated at the subject facility during 1991. From this response, we could determine whether the generator was subject to provisions of the Act. Only respondents who indicated at least 13.2 tons of hazardous waste was generated at their facility during 1991 were included in our compilations and analyses of survey responses. There were 508 such responses. These respondents were asked whether a *Review and Plan* for the subject facility had been prepared as required by the Act.

A total of 397 of the 508 respondents to the mail survey indicated a *Review and Plan* was prepared. In order to determine the proportion of those completed by September 1, 1991 (the date mandated by the Act), the 397 respondents were asked to indicate the date the *Review and Plan* was completed.

Finally, where possible in cases where explanatory comments were not provided, we conducted a telephone follow-up survey of respondents who indicated a *Review and Plan* had not yet been prepared for the subject facility. A total of 57 respondents were included in this analysis which was structured to obtain an

understanding of why generators captured by the Act have not yet complied.

**More Than 20 Percent
Of Generators Subject
To The Act Have Not
Yet Prepared A
Review And Plan**

For those 397 generators who prepared a *Review and Plan*, a majority (63 percent), prepared the *Review and Plan* by September 1, 1991 as required by the Act. An additional 13 percent prepared their *Review and Plan* after September 1, 1991, but prior to December 31, 1991. Only 17 percent of the respondents who indicated a *Review and Plan* had been prepared indicated it had been prepared subsequent to December 31, 1991. However, 22 percent of respondents to the survey candidly indicated a *Review and Plan* had not yet been prepared.

Generators cited a number of reasons for not yet having prepared a *Review and Plan* for a facility subject to provisions of the Act. First, and most frequently cited, was that they had not been aware of the Act until they received the mail survey. This reason was cited by 33 percent of the generators which had not yet prepared a *Review and Plan*. In addition, of those generators who indicated they were familiar with the law, several commented they were not aware of the specific requirement to prepare a *Review and Plan*. Rather, they believed the legislation was primarily aimed at increasing awareness of the need to reduce generation of hazardous waste at its source.

In most other cases generators stated either they were following in-house hazardous waste reduction plans which had not been formally documented to comply with the Act's requirements, or they were currently in the process of preparing a formally documented plan. A few other respondents indicated a *Review and Plan* had not been prepared due to turnover in the position responsible for complying with environmental regulation, or that they could not achieve reductions in generation of hazardous waste without compromising production efficiency or product quality. Some other respondents indicated they could not account for, quantify, or classify their hazardous waste produced. These responses indicate that the Act's requirements have not yet been fully communicated to a significant portion of the regulated population.

**The Department Has
Not Established An
Information System
To Support
Implementation Of
The Act**

Extensive hazardous waste generation related information is available through already established environmental protection programs within the Department and through other government agencies. However, the Department has not used these resources to develop a master list of generators subject to the Act. This list is needed for various purposes, including the following:

- Information dissemination (e.g., informing generators about the Act, subsequent related legislation, regulations adopted by the Department, etc.)
- Technical assistance (e.g., mailing out *Guidance Manuals*)
- Compliance monitoring and enforcement (e.g., selecting categories of generators for purposes of requesting copies of *Reviews and Plans* and *Performance Reports*)
- Processing and evaluating hazardous waste source reduction-related documents submitted by generators to the Department (capturing information regarding submission dates and the results of the Department's evaluation of these documents)
- Technology transfer (e.g., dissemination of technical information for generators with common process characteristics)
- Evaluating progress of the State's Hazardous Waste Source Reduction Program, and preparing associated reports to the Legislature (e.g., number of generators captured by the Act and quantity of hazardous waste generated by these sites).

The absence of a master list of generators captured by the Act limits the effectiveness of the Program in these areas and constrains overall Program effectiveness.

While the Act did not specifically require the Department develop a master list of generators captured by the Act, it did require that the Department establish a data and information system for specified compliance monitoring and enforcement purposes. Furthermore, the Act required the Department identify additional data and information needs of the Program in connection with establishing the data and information system. A major commitment of resources or extended calendar time frame is not needed to develop an initial master list of generators captured by the Act. For example, a preliminary list of more than 2,300 generators potentially captured by the Act was developed in a format suitable for purposes of this audit over a period of several weeks using the equivalent of only a few staff level positions during this period.

Conclusion A significant portion of the regulated population (i.e., about 20 percent) has not yet prepared a *Review and Plan* which the Act required be completed more than two years ago. To a large extent these generators have not been made aware of the Act, or they have misunderstood the Act's requirements, in contrast to knowingly and deliberately refusing to comply with regulatory requirements.

With a framework of self-regulation, the Act defines certain areas for which the Department has responsibility. These responsibilities include various regulatory, enforcement and technical assistance services and activities, and establishment of a data and information system which supports the needs of the Program in these and other areas. To date, the Department has not established such a data and information system which, at a minimum, should contain an initial master list of generators potentially subject to the Act (to the extent these can be identified through already established environmental protection programs within the Department and through other government agencies). Development of such a list would improve the effectiveness of the Program in several areas while making it possible to more fully realize the Program's goals and objectives.

Recommendation A high priority should be given by the Department to developing an initial master list of generators potentially subject to the Act. This list would act as a first step in establishing a data and information support system for the Program. Then, the Department should develop an effective program which assures all identified generators are fully informed of the Act's requirements. This program would also encourage generators to fulfill the Act's requirements.

Chapter 3 **The Department Has Not Established An Effective Compliance Verification Process And The Document Certification Process Does Not In Itself Guarantee Compliance**

Chapter Summary This chapter summarizes the compliance verification and monitoring process and activities of the Department, and the effectiveness of the document certification process in guaranteeing the integrity of the source reduction documents prepared by generators. The purpose of reviewing the Department's process and activities is to ascertain their effectiveness and efficiency, and their impact in terms of assuring generator compliance with the Act. Results of a structured review of *Review and Plans* provided to us by generators, along with their completed mail survey, were used to ascertain the effectiveness of the document certification process in guaranteeing generator compliance with the Act's documentation requirements.

Background The Act required on or before September 15, 1991, and every two years thereafter, that the Department select at least two categories of generators by SIC Code with potential for source reduction. For selected generators in each category, the Department is required to request a copy of the generator's completed *Review and Plan*, or *Plan Summary*, or both, and the generator's *Performance Report*, or *Report Summary*, or both, and examine these documents to ensure compliance with provisions of the Act.

If the Department determines a generator did not complete these documents in accordance with mandated requirements, the Department must provide the generator with a *Notice of Noncompliance*, specifying deficiencies in the document. Generators who fail to respond to the *Notice of Noncompliance*, by submitting a revised document which corrects any deficiencies within specified time frames, are subject to imposition of a civil penalty.

The Department utilized standard checklists for reviewing and evaluating these documents. Generally, the Department determined a

document was in compliance if, on an overall basis, it appeared the generator made a “good faith” effort to fulfill mandated requirements.

**The Department’s
Process For Verifying
Compliance Is
Ineffective**

In October, 1991, the Department selected four categories of generators by industry. These categories included aerospace, petroleum, paints and allied products, and semiconductors. A wide range of third party sources were used to identify groups of generators potentially subject to the Act.

The Department created a *Declaration of Exclusion* for generators contacted as part of the compliance verification process, who were not routinely generating sufficient quantities of hazardous waste or extremely hazardous waste. This *Declaration of Exclusion* required the signature of a responsible corporate officer, a general partner/proprietor, or a principal executive officer/ranking elected official, insuring that the total quantity of waste generated at the facility was below the threshold level.

During 1991 and 1992, a team of five Department staff identified and requested *Plan* and *Report Summaries* from 168 aerospace facilities. A total of 63 of the 168 facilities (38 percent) indicated they were not subject to the Act and, instead, filed a *Declaration of Exclusion*. The remaining 105 facilities only submitted a *Plan* and *Report Summary*. Department staff did not review all of the 105 *Summaries* submitted for compliance. Instead, the Department selected 22 of the 105 facilities based on their potential for identifying source reduction measures which could be used for technology transfer purposes. Then, the Department requested *Review and Plans* and *Performance Reports* from only the 22 selected facilities. Between September, 1992 and January, 1993, the Department completed compliance checklists for all documents submitted by the selected 22 generators (13 percent of those initially contacted). A total of 7 of the 22 sites were determined to be not in compliance.

During 1991 and 1992, a team of four Department staff identified and contacted 27 facilities from the petroleum industry. A total of 9 of the 27 facilities (33 percent) indicated they were not subject to the

Act, and filed a *Declaration of Exclusion*. The remaining 18 facilities submitted *Review and Plans*, *Plan Summaries*, *Performance Reports* and *Report Summaries*. A compliance checklist was completed for all documents submitted by each of the 18 facilities (67 percent of those initially contacted). One of the 18 sites was determined to not be in compliance.

Within the paints and allied products group, a list of 150 manufacturers was obtained from the American Business Information Service. A total of 60 of the larger manufacturers from this list were contacted by one Department staff person during 1992. Of the 60 manufacturers contacted, 12 facilities submitted *Review and Plans*, *Plan Summaries*, *Performance Reports*, and *Report Summaries*. The remaining 48 manufacturers (80 percent) either reported they were not in the paints and allied products industry, or not subject to requirements of the Act. A compliance checklist was completed for each document submitted by the 12 facilities (20 percent of those initially contacted). All 12 facilities were determined in compliance.

Within the semiconductor industry, 60 facilities were contacted by one Department staff person during 1992. This list was derived from industry association letters and trade journals. Of the 60 facilities, 11 submitted *Review and Plans*, *Plan Summaries*, *Performance Reports*, and *Report Summaries*. The remaining 49 facilities (82 percent) either reported they were not in the semiconductor industry, or not subject to requirements of the Act. A compliance checklist was completed for each document submitted by the 11 facilities (18 percent of those initially contacted). All 11 facilities were determined in compliance.

In total, the Department contacted 315 facilities. Of these 315 facilities, 72 facilities (23 percent) completed and returned a *Declaration of Exclusion*. An additional 97 facilities (31 percent) indicated either they were not subject to the Act or not within one of the four industry categories. Another 83 facilities (26 percent) submitted only *Plan* and *Report Summaries* (which were not reviewed for compliance). Only 63 of the 315 facilities contacted (20 percent) were reviewed for compliance.

**The Department Did
Not Verify That
Deficient Source
Reduction Documents
Were Revised**

According to the Act, generators issued a *Notice of Noncompliance* are required to resubmit a revised document within 60 days of receiving the written notice. *Notices of Noncompliance* were initially issued by the Department to 7 of the 22 aerospace facilities on January 25, 1993. A *Notice of Noncompliance* was not issued to the one petroleum facility which the Department determined was not in compliance. However, none of the *Notices of Noncompliance* issued required re-submittal of revised documents. Instead, generators were advised to maintain a copy of the corrected document at their site.

The Department issued a second notice to the 7 aerospace facilities on September 28, 1993. This was 8 months after the original issuance of the *Notice of Noncompliance*. These subsequent notices requested generators to submit, within 60 days, a revised copy of the document, correcting any deficiencies. Results of any subsequent compliance verification performed were not available at the time of this audit.

**The Department's
Compliance Process
Does Not Capture
Smaller Organizations
Which Are Less Likely
To Comply With The
Act**

To date, the Department's compliance verification and monitoring process has focused almost exclusively on large businesses. However, it is apparent from results of the mail survey to generators that smaller businesses are less likely to prepare a *Review and Plan*. Of those respondents indicating an organization size less than, or equal to 500 employees, 25 percent did not prepare a *Review and Plan*. For those with an organization size greater than 500 employees, only 13 percent said they did not prepare a *Review and Plan*. Furthermore, a greater percentage of smaller businesses indicated they did not have a hazardous waste program in place prior to preparation of a *Review and Plan*. Roughly, 42 percent of smaller businesses indicated not having a hazardous waste program in place prior to preparation of the *Review and Plan*, compared with 23 percent of large businesses. Based on these findings, smaller businesses appear to have a greater need for the Department's technical assistance services.

A reason the Department focused on large businesses was because they have greater potential for obtaining source reduction technologies which are transferable to other generators in a particular

industry. Larger businesses generally have greater resources to apply to research on source reduction technologies and to put toward more detailed source reduction documents. Unfortunately, without first identifying the regulated population, the Department will have difficulty transferring these source reduction technologies to the many smaller businesses subject to the Act.

**The Certification
Process Does Not
Guarantee
Compliance**

The Act requires that documents must be submitted by the generator for review and certification by a registered Professional Engineer who has demonstrated expertise in hazardous waste management, by an individual who is responsible for the processes and operations of the site, or by a registered Environmental Assessor who has demonstrated expertise in hazardous waste management. The certification is required to state that the *Review and Plan* addresses the source reduction approaches, sets forth measures to be taken, and does not merely shift hazardous waste streams to another medium. The overall intent of this review and certification is to assure *Review and Plan* integrity.

Nearly one-half of the respondents to the *Non-Anonymous Survey* indicated they prepared a *Review and Plan* for the subject facility, and nearly one-half of these respondents provided us with a copy of this document. In order to characterize their general format, content, and integrity, we performed a structured review of these documents. A total of 80 documents were reviewed and characterized on an aggregate basis as part of this analysis. The documents were representative in terms of industry category, size of organization, and geographic location.

For each document, we ascertained whether each of the following components were included, and the quality of the documentation:

- Description of the business
- Description of site operations
- Description of sources of hazardous waste
- Description and evaluation of available source reduction measures

- Identification and quantification of the effects of chosen source reduction measures
- Rationale for rejection of measures not selected
- Timetable/schedule for implementation of selected measures.

Concurrently, each document was further evaluated on an overall basis, as follows:

- | | | |
|-------------|---|---|
| <i>Good</i> | - | <i>Well organized and complete in all respects with thorough, detailed, quantified evaluations of alternative source reduction measures</i> |
| <i>Fair</i> | - | <i>Well organized and complete in several areas, with a few areas where the document was incomplete, vague, confusing, and/or lacking sufficient detail</i> |
| <i>Poor</i> | - | <i>Clearly incomplete or deficient in most, or all, areas.</i> |

With a few exceptions, all of the documents reviewed included a description of the business, and about 90 percent included (1) a description of site operations, (2) a description of sources of hazardous waste, and (3) a description and evaluation of alternative source reduction measures. About 80 percent of the documents contained an identification and quantification of effects of chosen source reduction measures. However, the quality of the documentation in each of the above areas (where provided) varied in terms of completeness and level of detail.

Only about 65 percent of documents provided an adequate rationale for rejection of source reduction measures which were not selected. Also, only about 65 percent of the documents included an adequate timetable/schedule for implementation of selected measures. In both of these areas, the quality of the documentation (where provided) varied.

Overall, only about 54 percent of the documents were rated *Good*. An additional 35 percent of the documents were rated *Fair*. About 11 percent of the documents were rated *Poor*. Virtually all of the

documents were certified as required by the Act, including all but one of the documents rated *Poor*.

Results of this review show that the certification process does not necessarily guarantee integrity of the documents. If the certification process did guarantee integrity of the documents, then well-organized, complete documents which included thorough, detailed, quantified evaluations of alternative source reduction measures would have been found in most (or all) cases. In contrast, in about one-third of the cases, the documents provided to us were found to be well-organized and complete in several areas, with a few areas where the document was incomplete, vague, confusing, or lacking sufficient detail. Additionally, in some cases certified documents were clearly incomplete or deficient in most, or all, areas.

Although the certification process does not guarantee integrity of the source reduction documents, *Review and Plan* quality has not yet been correlated with a change in the quantity of hazardous waste generated. Moreover, *Review and Plan* quality may not necessarily be a determinant of whether the Act contributes to (1) implementation of hazardous waste source reduction measures, or (2) a net reduction in generation of hazardous waste. Furthermore, it is possible that strict enforcement of source reduction program documentation requirements could be counter-productive in terms of motivating generators to identify and implement hazardous waste source reduction measures (which is the overall goal of the Act).

Conclusion An effective compliance verification process has not been established which substantially contributes to improving compliance. The Department's method of generator selection is inefficient and could be streamlined if the regulated population were identified. The Department has not properly followed up on generators who submitted documents not in compliance with the Act's provisions. The Department has not focused compliance efforts on smaller generators, who are less likely to comply with provisions of the Act. Finally, although the document certification process does not necessarily guarantee integrity of the source reduction documents, the Department should continue its current emphasis on providing technical assistance services, facilitating transfer of technologies, and

encouraging generator implementation of source reduction measures (as opposed to attempting enforcement of strict compliance with documentation requirements as an end in itself). With the Act's latitude in allowing the Department to request any generator's *Review and Plan*, significant improvements are possible in the effectiveness with which Department staffing resources are utilized for compliance verification purposes.

Recommendations To improve its compliance verification and monitoring process, the Department should take the following actions:

- Streamline the process used for requesting and reviewing generator documents by developing and utilizing a list of generators in the regulated population
- Focus efforts to request documents from a broader range of industries and business sizes
- Significantly increase the number of reviews that are performed of generator documents in order to further support and encourage their source reduction efforts, provide technical assistance services, and facilitate transfer of technologies (where appropriate)
- Require submittal of revised documents by generators issued a *Notice of Noncompliance* within the mandated 60-day period.

While the certification process does not guarantee integrity of the source reduction documents, the process, nonetheless, may be having a positive effect in terms of achieving a higher level of compliance with documentation requirements than would otherwise exist. Therefore, the certification requirement should be retained, but as discussed above, the Department should request and review larger numbers of source reduction documents prepared by a broader range of generators.

Chapter 4 Various Administrative and Programmatic Provisions of the Act Have Been Adequately Complied With By The Department

Chapter Summary This chapter presents a summary of our review of several additional administrative and programmatic responsibilities of the Department. We incorporated interviews with state agencies and Department staff, and results of the mail survey to generators, into an evaluation of the Department's effectiveness in carrying out these administrative and programmatic responsibilities. From this review it appears the Department complied with other administrative and programmatic provisions of the Act.

Background The Department has established a program for hazardous waste source reduction pursuant to the Act. Beyond program development, the Act required that the Department:

- Coordinate activities of all state agencies with responsibilities and duties relating to hazardous waste, while promoting coordinated efforts to the fullest extent possible
- Adopt regulations needed to carry out the Act
- Adopt regulations to establish procedures for exempting generators from requirements of the Act where the Department determines no source reduction opportunities exist
- Adopt regulations to ensure trade secrets are utilized only for specified purposes, and not disseminated without consent of the generator
- Adopt a format to be used by generators for completing the *Review and Plan*, *Plan Summary*, *Performance Report*, and *Report Summary*

- Establish a technical and research assistance program to assist generators in identifying and applying methods of source reduction and other hazardous waste management approaches
- Establish a process for certifying, upon request for certification from a third party, that a generator has properly prepared the *Review and Plan*, *Plan Summary*, *Performance Report* and *Report Summary*.

The Department Has Coordinated Activities of State Agencies

The Department is required to coordinate activities of all State agencies with responsibilities and duties relating to hazardous waste while promoting coordinated efforts to encourage reduction of hazardous waste. The Department has made efforts to coordinate activities of State agencies through workshops and assistance programs. The Department held a Government Agency workgroup meeting in December, 1989, to allow state agencies to assist in the development of regulations. Other Department workshops held during 1991 were directed to the California Air Resources Board, Bay Area Regional Water Quality Control Board, California Air Resources Board, California State Universities, as well as the University of California. The Department's Interagency Pollution Prevention Assistance Program assisted State agencies, the Prison Industry Authority and the State Printing Office to incorporate pollution prevention options into their administration and operations.

State agencies contacted as part of our audit, including the Cal/EPA, the Air Resources Board, and the Integrated Waste Management Board, suggested the Department made efforts to coordinate hazardous waste reduction activities. One agency commented:

[The Department] has been very helpful in transferring information and they have very good resources.

**The Department Has
Adopted Regulations
To Carry Out The Act**

To assist in the development of regulations, the Department received broad based input from government agency, environmental, and industry workgroup meetings held December, 1989 through March, 1990. The regulations were first noticed on November 23, 1990. A public hearing was held in Sacramento on January 7, 1991, giving opportunity for public comment. Modifications were made to the proposed regulations based on public comments and internal review. The revised version of the regulations were noticed again on March 1, 1991, and formally adopted in August, 1991.

**The Department Has
Established
Procedures for
Exempting Generators
When No Source
Reduction
Opportunities Exist**

The Department adopted regulations to establish procedures for exempting generators from the Act's requirements where the Department determined no source reduction opportunities existed. As a result, generators can petition the Department in writing to exempt a hazardous waste stream. The generator must provide documentation to demonstrate no source reduction opportunities exist for the identified waste stream. The Department then will publicly notice their proposed acceptance of any exemption petition. A minimum of 45 days is provided for public review and comment prior to the Department rendering any determination on a petition. To date no generators have petitioned the Department to exempt a hazardous waste stream and therefore the effectiveness of this exemption process cannot be evaluated.

**The Department Has
Adopted Regulations
Ensuring Protection
Of Trade Secrets**

The Department adopted regulations to ensure trade secrets designated by a generator in the *Review and Plan*, *Plan Summary*, *Performance Report* or the *Report Summary*, are not disseminated by the Director, Department, any authorized representative of the Department, or the local agency, without the generator's consent. Each page of a generators document containing confidential information is marked with the words "confidential business information." If a claim of confidentiality is asserted by a generator asked to submit a document, then two versions of the document are submitted, one with confidential pages and one without.

To date, a small number of *Reviews and Plans*, *Plan Summaries*, *Performance Reports*, and *Report Summaries* that were submitted to the Department contained trade secrets. These documents are held in Department staff work areas on shelves and in binders.

**The Department Has
Adopted A Document
Format To Be Used By
Generators**

The Department adopted a format for preparation of source reduction documents. This format was consistent with the mandated requirement for the *Review and Plan*, *Plan Summary*, *Performance Report* and *Report Summary*.

In an effort to make reporting easier for small businesses the Department adopted a separate reporting format for generators who fell under the Department's small businesses definition (measured on gross revenues, number of employees, industry, etc). The format allowed the small businesses to substitute the most recent *Biennial Generator's Report* for the *Performance Report* and *Report Summary*. In addition, the format allowed small businesses to substitute a completed *Hazardous Waste Audit Checklist* for the *Review and Plan* and *Plan Summary*. The *Hazardous Waste Audit Checklists* are contained in *Waste Audit Studies* which are available for approximately 23 different industries. The *Waste Audit Studies* are designed to provide self audit guidelines for small businesses to follow.

**The Department Has
Established A Good
Technical And
Research Assistance
Program**

The Department has established a good technical and research assistance program to assist generators in identifying and applying methods of source reduction and other hazardous waste management approaches. The program was designed to emphasize assistance to smaller businesses with inadequate technical and financial resources.

In accordance with mandated requirements, this program included a number of statewide plan assistance programs, seminars, workshops and training programs. Approximately 44 Department sponsored assistance programs, seminars, workshops and presentations were held throughout the state between December, 1989 and July, 1993. The Department also conducted three regional staff training sessions in Sacramento, Berkeley, and Glendale during August 1991. Finally,

a tele-video conference was held in San Diego, with multiple downlinks throughout California on March 28, 1991. Department staff estimated a total of about 2,500 attended these Department seminars, presentations and workshops, including about 1,000 generators. To ascertain the Department's effectiveness in assisting generators at programs, seminars, workshops and presentations, responses of the mail survey to generators were used. A total of 166 respondents reported receiving Departmental assistance; of these 82 percent rated the Department *Fair* or *Good*.

The Department established a program to assemble, catalogue, and disseminate information about hazardous waste source reduction methods, available consultant services, and regulatory requirements. As part of this program, the Department developed a *Guidance Manual* to assist generators. This *Guidance Manual* provides guidelines for preparation of the *Review and Plan*, *Plan Summary*, *Performance Report*, and *Report Summary*. The appendix to the *Guidance Manual* includes the Act and related regulations, sample documents and a compilation of hazardous waste recycling laws. Also included in the appendix are materials designed to be particularly helpful to smaller businesses, including a list of environmental consultants, a list of industry organizations, abstracts of source reduction literature, a list of hazardous waste managers and training coordinators, a list of local environmental health jurisdictions, relevant alternative technology publications, and the definition of a small business.

The *Guidance Manual* was made available on a limited basis in draft form from January, 1991 through September, 1991. The final version was completed in October, 1991, following updates which were the result of the August, 1991 adoption of the regulations. The *Guidance Manual* was distributed at conferences and mailed to approximately 2,000 government representatives, consultants, and generators on the Department's mailing list. In addition, the Department forwards copies of the *Guidance Manual* upon request to generators contacting the Department.

The Department made additional alternative technology publications available to the public. The Alternate Technology Division, Technology Clearinghouse Unit published seven *Hazardous Waste Reduction Checklists* and *Assessment Manuals* between 1988 and 1993, to assist manufacturers in evaluating their processes for

potential source reduction opportunities. Approximately 90 additional reports covering related hazardous waste topics were available to the public.

Another provision of the technical and research assistance program involved identifying specific technical solutions that can be applied to hazardous waste generators to reduce generation. A total of 11 fact sheets were prepared to assist generators, offering a reference for potential source reduction techniques. Fact sheets were completed for industry categories including: aerospace, automotive paint shops, automotive repair shops, building construction, commercial printing, metal finishers, paint formulators, pesticide formulating, printed circuit board manufacturers, and decorative plating with trivalent chrome.

A fact sheet also was prepared specifically for the petroleum industry, which highlighted some examples of source reduction measures being pursued by industry. Abstracts of refinery source reduction measures were prepared. The petroleum industry fact sheet and abstracts were distributed to the California petroleum industry and interested public in 1992.

**The Department Has
Responded Effectively
To Requests For
Certification**

Any person may request that the Department certify a generator is in compliance with the Act by having the Department perform a compliance check of a completed *Review and Plan*, *Plan Summary*, *Performance Report*, and *Report Summary*. The Department has received five requests for certification. These requests were made March 25, 1993, by one law firm. The requests were for certification of five petroleum industry generators. The Department responded to the request within the 60-day mandated response period, by writing a letter to the law firm on May 24, 1993 certifying each refineries' *Review and Plan*, *Plan Summary*, *Performance Report*, and *Report Summary*. According to the law firm, the Department arranged also to have each of the five generator's documents copied within 10 days after the request, also a mandated requirement of the Act. The law firm indicated they were pleased with the responsiveness of the Department.

Conclusion The Department has complied with the various administrative and programmatic provisions of the Act. The Department has coordinated activities of state agencies and has adopted regulations to carry out the Act. Also, the Department has established procedures for exempting generators, ensured protection of trade secrets, adopted a document format to be used by generators, established a good technical and research assistance program, and responded effectively to requests for certification.

Recommendation The Department should continue to comply with the various other administrative and programmatic provisions of the Act. Also, the Department should build on their existing core competencies, particularly with respect to their technical and research program, to provide assistance services to a larger number of generators.

APPENDIX A

**NON-ANONYMOUS MAIL SURVEY
OF GENERATORS**

Appendix A - Non-Anonymous Mail Survey of Generators

Appendix A contains the **non-anonymous** mail survey disseminated to 1,158 generators (one-half of the identified population). These generators were identified by facility name and EPA identification number on the cover of the survey. Respondents were asked to provide a copy of the *Review and Plan* for the subject facility with their completed survey. Also included is the Bureau of State Audits cover letter which accompanied the survey.



CALIFORNIA STATE AUDITOR
BUREAU OF STATE AUDITS

KURT R. SJOBERG
State Auditor

MARIANNE P. EVASHENK
Chief Deputy State Auditor

September 30, 1993

Reference: Hazardous Waste Source Reduction Questionnaire

Under California's Hazardous Waste Source Reduction and Management Review Act of 1989 (Act), generators of more than 12,000 kilograms (13.2 tons) of hazardous waste or 12 kilograms (26.4 pounds) of extremely hazardous waste per year are required to complete a "Source Reduction Evaluation Review and Plan." The Act also requires that the "Source Reduction Evaluation Review and Plan" be completed before September 1, 1991.

As required by the Act, California's Bureau of State Audits is conducting an assessment of the California Department of Toxic Substances Control's performance in carrying out the Act. The Bureau of State Audits, which is independent of the Department of Toxic Substances Control, has retained the consulting firm of Ernst & Young to provide assistance in conducting this assessment.

As part of this assessment, we are asking you to complete the enclosed questionnaire which is directed to a sample of organizations that have one or more facilities, each generating more than 13.2 tons of hazardous waste per year. This survey should take only a few minutes to complete. A response to this survey from your organization is critically important to the assessment because only actual generators of hazardous waste can provide input regarding performance of the California Department of Toxic Substances Control in carrying out certain provisions of the Act.

Please assist us by completing the enclosed questionnaire for the specified subject facility. Responses must be received by October 14, 1993. A postage-paid, pre-addressed envelope to Ernst & Young is included for your convenience.

Finally, we request that you provide Ernst & Young with a copy of the "Source Reduction Evaluation Review and Plan" for the subject facility (if available). These materials will be reviewed for purposes of characterizing, on an aggregate basis, their general format and content.

Thank you for taking the time and effort to complete and return the enclosed questionnaire. Any questions about this survey should be directed to Mr. Erik Nylund with Ernst & Young, at (916) 449-3544.

Sincerely,

KURT R. SJOBERG
State Auditor

Enclosure

660 J Street, Suite 300, Sacramento, California 95814
Telephone: (916) 445-0255 Fax: (916) 327-0019

A-3

**California State Auditor
Bureau of State Audits**

**Performance Evaluation of the
California Department of Toxic Substances Control's
Implementation of the
Hazardous Waste Source Reduction
and Management Review Act (SB 14)**

Facility Identifier Label
--

**Please Return the Completed Questionnaire By
October 14, 1993**

Return to: Ernst & Young
555 Capitol Mall, Suite 650
Sacramento, CA 95814

General Instructions for Completing this Questionnaire

Your careful completion of this questionnaire is very important. Please answer each question to the best of your ability by checking the appropriate box ☐ or by filling in the requested information. Responses you provide to this survey should concern the *subject facility* indicated on the front of the questionnaire. Please keep in mind that your participation in the survey will assist in evaluating the performance of California's Department of Toxic Substances Control in implementing the Hazardous Waste Source Reduction and Management Review Act of 1989.

Applicability of the Hazardous Waste Source Reduction and Management Review Act (SB 14) to the Subject Facility

With respect to applicability of California's Hazardous Waste Source Reduction and Management Review Act to the subject facility, the Act applies only to generators who, by site, routinely generate through ongoing processes and operations, more than 12,000 kilograms of hazardous waste in a reporting year (or more than 12 kilograms of extremely hazardous waste in a calendar year). The following hazardous wastes streams should *not* be included in calculating the volume (or comparable weight) of waste produced, and are not subject to the Act:

- Automotive fluids
- Lead acid batteries
- Household hazardous waste streams and wastes from household collection events
- Wastes separated at community landfills
- Waste pesticides and pesticide containers collected by County agricultural commissioners
- Spent munitions and ordnance
- Decommissioned utility poles.

Also, the following hazardous wastes streams that are not routinely generated should not be included in calculating the volume (or comparable weight) of waste produced, and are not subject to the Act:

- Waste from site cleanup and mitigation activities, including remedial investigations
- Samples and evidence from enforcement actions
- Asbestos
- PCBs
- Formation fluids and solids from oil, gas, and geothermal exploration and field development
- Demolition waste/major renovation
- Waste generated from emergency response actions.

Finally, medical waste is exempted from the Act, and a generator may petition the Department of Toxic Substances Control in writing to exempt other hazardous waste streams.

Thank you for your cooperation. If you have any questions please call Mr. Erik Nylund at Ernst & Young's Sacramento office (916) 449-3544.

- 1. Subject facility industry group number**(2):
(See list of industry group numbers on the back of this questionnaire)

 - 2. County in which subject facility is located**(3): _____

 - 3. Number of employees:**

	1 to 100	101 to 500	More than 500
• At the subject facility(4)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
• Total (including all affiliated and related businesses) (5)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

 - 4. Estimated quantity of hazardous waste* routinely generated at the subject facility during 1991?**(6)

<input type="checkbox"/> ₁ 5.5 tons or less	<input type="checkbox"/> ₄ 101 to 1,000 tons
<input type="checkbox"/> ₂ 5.6 to 13.1 tons	<input type="checkbox"/> ₅ Greater than 1,000 tons
<input type="checkbox"/> ₃ 13.2 to 100 tons	<input type="checkbox"/> ₆ Don't Know

* As defined by the Hazardous Waste Source Reduction and Management Review Act and related regulations.
(See instructions on inside of front cover)

 - 5. Was a Source Reduction Evaluation Review and Plan for the subject facility prepared as required by the Hazardous Waste Source Reduction and Management Review Act of 1989 (and related regulations)?**(7)

<input type="checkbox"/> ₁ No. If no, provide any related comments below and skip to Question 11.
<input type="checkbox"/> ₂ Yes. If yes, indicate date completed and estimated cost to prepare, and provide any related comments below. Then, complete all remaining survey questions.

Date Completed(8): ___/___/___ Estimated Cost to Prepare(9): \$_____

Comments: _____

 - 6. Prior to preparation of the Source Reduction Evaluation Review and Plan, did the subject facility have a hazardous waste reduction program in place?**(10)

<input type="checkbox"/> ₁ Yes
<input type="checkbox"/> ₂ No
<input type="checkbox"/> ₃ Not Applicable

 - 7. How would you evaluate the Department of Toxic Substances Control's performance in assisting your organization to prepare a Source Reduction Evaluation Review and Plan for the subject facility?**(11)

<input type="checkbox"/> ₁ Good
<input type="checkbox"/> ₂ Fair
<input type="checkbox"/> ₃ Poor
<input type="checkbox"/> ₄ Not Applicable (no assistance provided)

Please continue to the next page.

8. **Has the Hazardous Waste Source Reduction and Management Review Act, and associated site review and source reduction planning process requirements, motivated your organization to implement hazardous waste reduction measures over and above what otherwise would have been implemented at the subject facility?**⁽¹²⁾

☐₁ Yes

☐₂ No. If no, have these requirements hindered implementation of hazardous waste reduction measures at the subject facility?⁽¹³⁾

☐₁ Yes

☐₂ No

Briefly Explain: _____

9. **To what extent has your organization implemented the hazardous waste reduction measures included in the Source Reduction Evaluation Review and Plan for the subject facility?**⁽¹⁴⁾

- ☐₁ Fully
☐₂ Moderately
☐₃ Limited
☐₄ Not at All

10. **Adjusted for any production level changes, to what extent has implementation of the hazardous waste reduction measures included in the Source Reduction Evaluation Review and Plan for the subject facility contributed to a net reduction in the generation of hazardous waste over and above what otherwise would have been achieved?**⁽¹⁵⁾

- ☐₁ Significant Contribution
☐₂ Moderate Contribution
☐₃ Minor Contribution
☐₄ No Contribution at All

11. **If your organization has reduced the generation of hazardous waste at the subject facility during the past two years, what have been the primary factors which have motivated your hazardous waste source reduction efforts?**

If, adjusted for any production level changes, generation of hazardous waste at the subject facility has not been reduced, check the following box and skip to Question 12. ☐₍₁₆₎

	Very Important	Important	Not Important	Not Applicable
Air quality regulations ⁽¹⁷⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
California's Hazardous Waste Source Reduction and Management Review Act ⁽¹⁸⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Cost of hazardous waste disposal ⁽¹⁹⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Liabilities associated with hazardous waste disposal ⁽²⁰⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Water quality regulations ⁽²¹⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Worker health and safety regulations ⁽²²⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Other (specify) ⁽²³⁾ _____	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Please continue to the next page.

12. Overall, how would you evaluate the *California Department of Toxic Substances Control's* performance in assisting your organization achieve a net reduction in generation of hazardous waste at the subject facility?⁽²⁴⁾

- ☐₁ Good
☐₂ Fair
☐₃ Poor
☐₄ Not Applicable (no assistance provided)

Comments: _____

13. Please provide any other comments regarding California's Hazardous Waste Source Reduction and Management Review Act or your organization's hazardous waste source reduction efforts.

14. If you have a "public copy" (i.e., without trade secrets) of the Source Reduction Evaluation Review and Plan for the subject facility available for public inspection, please mail us a copy with your completed survey.

15. Survey Respondent Identifier Information (optional):

Prepared by⁽²⁵⁾: _____

Title⁽²⁶⁾: _____ Phone⁽²⁷⁾: _____

Thank you. Please insert the completed questionnaire into the pre-addressed envelope and mail to Ernst & Young, 555 Capitol Mall, Suite 650, Sacramento, California 95814. If applicable, please include a copy of the Source Reduction Evaluation Review and Plan for the subject facility.

Industry Group Numbers

(For purposes of this survey, the subject facility group number is indicated next to the industry description.

For example, the subject facility group number for Tobacco products is 11.)

Agriculture

1. Forestry
2. Other agriculture

Mining

3. Metal mining
4. Coal mining
5. Oil and gas extraction
6. Other mining

Construction

7. Building construction
8. Heavy construction other than building construction
9. Other construction

Manufacturing

10. Food and kindred products
11. Tobacco products
12. Textile mill products
13. Apparel and other textile products
14. Lumber and wood products, except furniture
15. Furniture and fixtures
16. Paper and allied products
17. Printing, publishing and allied industries
18. Chemicals and allied products
19. Petroleum refining and related industries
20. Rubber and miscellaneous plastic products
21. Leather and leather products
22. Stone, clay, glass and concrete products
23. Primary metal industries
24. Fabricated metal products, except machinery and transportation equipment
25. Industrial and commercial machinery and computer equipment
26. Electronic and other electrical equipment and components, except computer equipment
27. Transportation equipment (including aircraft, ships, railroads, missiles and motor vehicles)
28. Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods
29. Misc. manufacturing industries

Transportation, communications, electric, gas and sanitary services

30. Railroad transportation
31. Local and suburban transit and interurban highway passenger transportation
32. US Postal Service
33. Water transportation
34. Transportation by air
35. Pipelines, except natural gas
36. Transportation services
37. Communications
38. Electric, gas and sanitary services
39. Other transportation, communications, electric, gas and sanitary services

Wholesale Trade

40. Durable goods
41. Nondurable goods

Retail Trade

42. Building materials, hardware, garden supply, and mobile home dealers
43. Automotive dealers and gasoline service stations
44. Other retail trade

Finance, insurance, and real estate

45. Real estate
46. Other finance, insurance, and real estate

Services

47. Personal
48. Business
49. Automotive repair, services, and parking
50. Miscellaneous repair
51. Health
52. Educational
53. Engineering, accounting, research, management, and related services
54. Other services

Public Administration

55. Executive, legislative, and general government, except finance
56. Other public administration

Nonclassifiable establishments

57. Nonclassifiable establishments

APPENDIX B

**ANONYMOUS MAIL SURVEY
OF GENERATORS**

Appendix B - Anonymous Mail Survey of Generators

Appendix B contains copies of the **anonymous** mail survey administered to 1,158 generators (one-half of the identified population). These generators were identified by facility name and EPA identification number on the cover of the survey. To maintain anonymity, prior to returning the survey, respondents were asked to remove the survey cover . This survey served to control for any potential response bias which might have resulted from the survey administered as non-anonymous (see Appendix A). Also included is the Bureau of State Audits cover letter which accompanied the survey.



CALIFORNIA STATE AUDITOR
BUREAU OF STATE AUDITS

KURT R. SJOBERG
State Auditor

MARIANNE P. EVASHENK
Chief Deputy State Auditor

September 30, 1993

Reference: Hazardous Waste Source Reduction Anonymous Questionnaire

Under California's Hazardous Waste Source Reduction and Management Review Act of 1989 (Act), generators of more than 12,000 kilograms (13.2 tons) of hazardous waste or 12 kilograms (26.4 pounds) of extremely hazardous waste per year are required to complete a "Source Reduction Evaluation Review and Plan." The Act also requires that the "Source Reduction Evaluation Review and Plan" be completed before September 1, 1991.

As required by the Act, California's Bureau of State Audits is conducting an assessment of the California Department of Toxic Substances Control's performance in carrying out the Act. The Bureau of State Audits, which is independent of the Department of Toxic Substances Control, has retained the consulting firm of Ernst & Young to provide assistance in conducting this assessment.

As part of this assessment, we are asking you to complete the enclosed questionnaire which is directed to a sample of organizations that have one or more facilities, each generating more than 13.2 tons of hazardous waste per year. This anonymous survey should take only a few minutes to complete. A response to this survey from your organization is critically important to the assessment because only actual generators of hazardous waste can provide input regarding performance of the California Department of Toxic Substances Control in carrying out certain provisions of the Act.

Please assist us by completing the enclosed questionnaire for the specified subject facility. To maintain anonymity, remove the questionnaire's cover sheet which identifies the subject facility prior to returning the completed questionnaire. Responses must be received by October 14, 1993. A postage-paid, pre-addressed envelope to Ernst & Young is included for your convenience.

Thank you for taking the time and effort to complete and return the enclosed questionnaire. Any questions about this survey should be directed to Mr. Erik Nylund with Ernst & Young, at (916) 449-3544.

Sincerely,

KURT R. SJOBERG
State Auditor

Enclosure

**California State Auditor
Bureau of State Audits**

**Performance Evaluation of the
California Department of Toxic Substances Control's
Implementation of the
Hazardous Waste Source Reduction
and Management Review Act (SB 14)**

Facility Identifier Label
--

**Please Remove This Sheet and Return the
Completed Questionnaire By
October 14, 1993**

Return to: Ernst & Young
555 Capitol Mall, Suite 650
Sacramento, CA 95814

General Instructions for Completing this Questionnaire

Your careful completion of this questionnaire is very important. Please answer each question to the best of your ability by checking the appropriate box ☐ or by filling in the requested information. Responses you provide to this survey should concern the *subject facility* indicated on the front of the questionnaire. Please keep in mind that your participation in the survey will assist in evaluating the performance of California's Department of Toxic Substances Control in implementing the Hazardous Waste Source Reduction and Management Review Act of 1989.

Applicability of the Hazardous Waste Source Reduction and Management Review Act (SB 14) to the Subject Facility

With respect to applicability of California's Hazardous Waste Source Reduction and Management Review Act to the subject facility, the Act applies only to generators who, by site, routinely generate through ongoing processes and operations, more than 12,000 kilograms of hazardous waste in a reporting year (or more than 12 kilograms of extremely hazardous waste in a calendar year). The following hazardous wastes streams should *not* be included in calculating the volume (or comparable weight) of waste produced, and are not subject to the Act:

- Automotive fluids
- Lead acid batteries
- Household hazardous waste streams and wastes from household collection events
- Wastes separated at community landfills
- Waste pesticides and pesticide containers collected by County agricultural commissioners
- Spent munitions and ordnance
- Decommissioned utility poles.

Also, the following hazardous wastes streams that are not routinely generated should not be included in calculating the volume (or comparable weight) of waste produced, and are not subject to the Act:

- Waste from site cleanup and mitigation activities, including remedial investigations
- Samples and evidence from enforcement actions
- Asbestos
- PCBs
- Formation fluids and solids from oil, gas, and geothermal exploration and field development
- Demolition waste/major renovation
- Waste generated from emergency response actions.

Finally, medical waste is exempted from the Act, and a generator may petition the Department of Toxic Substances Control in writing to exempt other hazardous waste streams.

Thank you for your cooperation. If you have any questions please call Mr. Erik Nylund at Ernst & Young's Sacramento office (916) 449-3544.

- 1.** Subject facility industry group number⁽²⁾: — —
- (See list of industry group numbers on the back of this questionnaire)
- 2.** County in which subject facility is located⁽³⁾: _____
- 3.** Number of employees:
- | | 1 to 100 | 101 to 500 | More than 500 |
|---|---------------------------------------|---------------------------------------|---------------------------------------|
| • At the subject facility ⁽⁴⁾ | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ |
| • Total (including all affiliated
and related businesses) ⁽⁵⁾ | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ |
- 4.** Estimated quantity of hazardous waste* routinely generated at the subject facility during 1991?⁽⁶⁾
- | | |
|--|---|
| <input type="checkbox"/> ₁ 5.5 tons or less | <input type="checkbox"/> ₄ 101 to 1,000 tons |
| <input type="checkbox"/> ₂ 5.6 to 13.1 tons | <input type="checkbox"/> ₅ Greater than 1,000 tons |
| <input type="checkbox"/> ₃ 13.2 to 100 tons | <input type="checkbox"/> ₆ Don't Know |
- * As defined by the Hazardous Waste Source Reduction and Management Review Act and related regulations.
(See instructions on inside of front cover)
- 5.** Was a Source Reduction Evaluation Review and Plan for the subject facility prepared as required by the Hazardous Waste Source Reduction and Management Review Act of 1989 (and related regulations)?⁽⁷⁾
- ☐₁ No. If no, provide any related comments below and skip to Question 11.
- ☐₂ Yes. If yes, indicate date completed and estimated cost to prepare, and provide any related comments below. Then, complete all remaining survey questions.
- Date Completed⁽⁸⁾: ____/____/____ Estimated Cost to Prepare⁽⁹⁾: \$_____
- Comments: _____
- _____
- _____
- 6.** Prior to preparation of the Source Reduction Evaluation Review and Plan, did the subject facility have a hazardous waste reduction program in place?⁽¹⁰⁾
- ☐₁ Yes
- ☐₂ No
- ☐₃ Not Applicable
- 7.** How would you evaluate the Department of Toxic Substances Control's performance in assisting your organization to prepare a Source Reduction Evaluation Review and Plan for the subject facility?⁽¹¹⁾
- ☐₁ Good
- ☐₂ Fair
- ☐₃ Poor
- ☐₄ Not Applicable (no assistance provided)

Please continue to the next page.

8. **Has the Hazardous Waste Source Reduction and Management Review Act, and associated site review and source reduction planning process requirements, motivated your organization to implement hazardous waste reduction measures over and above what otherwise would have been implemented at the subject facility?**⁽¹²⁾

☐₁ Yes

☐₂ No. If no, have these requirements hindered implementation of hazardous waste reduction measures at the subject facility:⁽¹³⁾

☐₁ Yes

☐₂ No

Briefly Explain: _____

9. **To what extent has your organization implemented the hazardous waste reduction measures included in the Source Reduction Evaluation Review and Plan for the subject facility?**⁽¹⁴⁾

☐₁ Fully

☐₂ Moderately

☐₃ Limited

☐₄ Not at All

10. **Adjusted for any production level changes, to what extent has implementation of the hazardous waste reduction measures included in the Source Reduction Evaluation Review and Plan for the subject facility contributed to a net reduction in the generation of hazardous waste over and above what otherwise would have been achieved?**⁽¹⁵⁾

☐₁ Significant Contribution

☐₂ Moderate Contribution

☐₃ Minor Contribution

☐₄ No Contribution at All

11. **If your organization has reduced the generation of hazardous waste at the subject facility during the past two years, what have been the primary factors which have motivated your hazardous waste source reduction efforts?**

If, adjusted for any production level changes, generation of hazardous waste at the subject facility has not been reduced, check the following box and skip to Question 12.

☐₍₁₆₎

	Very Important	Important	Not Important	Not Applicable
Air quality regulations ⁽¹⁷⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
California's Hazardous Waste Source Reduction and Management Review Act ⁽¹⁸⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Cost of hazardous waste disposal ⁽¹⁹⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Liabilities associated with hazardous waste disposal ⁽²⁰⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Water quality regulations ⁽²¹⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Worker health and safety regulations ⁽²²⁾	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
Other (specify) ⁽²³⁾ _____	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Please continue to the next page.

Industry Group Numbers

(For purposes of this survey, the subject facility group number is indicated next to the industry description.
For example, the subject facility group number for Tobacco products is 11.)

Agriculture

1. Forestry
2. Other agriculture

Mining

3. Metal mining
4. Coal mining
5. Oil and gas extraction
6. Other mining

Construction

7. Building construction
8. Heavy construction other than building construction
9. Other construction

Manufacturing

10. Food and kindred products
11. Tobacco products
12. Textile mill products
13. Apparel and other textile products
14. Lumber and wood products, except furniture
15. Furniture and fixtures
16. Paper and allied products
17. Printing, publishing and allied industries
18. Chemicals and allied products
19. Petroleum refining and related industries
20. Rubber and miscellaneous plastic products
21. Leather and leather products
22. Stone, clay, glass and concrete products
23. Primary metal industries
24. Fabricated metal products, except machinery and transportation equipment
25. Industrial and commercial machinery and computer equipment
26. Electronic and other electrical equipment and components, except computer equipment
27. Transportation equipment (including aircraft, ships, railroads, missiles and motor vehicles)
28. Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods
29. Misc. manufacturing industries

Transportation, communications, electric, gas and sanitary services

30. Railroad transportation
31. Local and suburban transit and interurban highway passenger transportation
32. US Postal Service
33. Water transportation
34. Transportation by air
35. Pipelines, except natural gas
36. Transportation services
37. Communications
38. Electric, gas and sanitary services
39. Other transportation, communications, electric, gas and sanitary services

Wholesale Trade

40. Durable goods
41. Nondurable goods

Retail Trade

42. Building materials, hardware, garden supply, and mobile home dealers
43. Automotive dealers and gasoline service stations
44. Other retail trade

Finance, insurance, and real estate

45. Real estate
46. Other finance, insurance, and real estate

Services

47. Personal
48. Business
49. Automotive repair, services, and parking
50. Miscellaneous repair
51. Health
52. Educational
53. Engineering, accounting, research, management, and related services
54. Other services

Public Administration

55. Executive, legislative, and general government, except finance
56. Other public administration

Nonclassifiable establishments

57. Nonclassifiable establishments

APPENDIX C

**SUMMARY OF GENERATOR
RESPONSES**

Appendix C - Summary of Generator Responses

Appendix C contains a summary of responses to the mail survey of generators. These responses are organized as follows:

- Respondent Profile Questions
- Compliance Questions
- Source Reduction Evaluation Review and Plan Questions
- Hazardous Waste Source Reduction Implementation Questions
- Evaluation of Factors Which Have Motivated Hazardous Waste Source Reduction Efforts

Summary of Generator Survey Responses

Respondent Profile Questions

Cross Reference	Abbreviated Survey Questions	All Respondents		Non-Anonymous Respondents		Anonymous Respondents	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Q.1 V.2	Subject facility industry group:						
	No Response/Unknown	4	1%	2	1%	2	1%
	Chemicals and Allied Products Manufacturing	56	11%	27	10%	29	12%
	Rubber and Miscellaneous Plastics Products Manufacturing	16	3%	9	3%	7	3%
	Primary Metals Manufacturing	15	3%	11	4%	4	2%
	Fabricated Metal Products Manufacturing, Except Machinery and Equipment	80	16%	46	17%	34	14%
	Electronic and Electrical Equipment and Components Manufacturing, Except Computer Equipment	78	15%	40	15%	38	16%
	Transportation Equipment Manufacturing	28	6%	9	3%	19	8%
	Other Manufacturing	130	26%	72	26%	58	25%
	Transportation, Communication, Electric, Gas, Sanitary, and Other Services	66	13%	40	15%	26	11%
	Miscellaneous Non-Manufacturing Generators, Not Elsewhere Classified	35	7%	17	6%	18	8%
	Total	508	100%	273	100%	235	100%
Q.2 V.3	County in which subject facility is located:						
	No Response/Unknown	15	3%	12	4%	3	1%
	San Francisco Bay Area Counties	122	24%	70	26%	52	22%
	Los Angeles and Orange Counties	247	49%	121	44%	126	54%
	Central Valley Counties	36	7%	24	9%	12	5%
	Other Northern California Counties	13	3%	6	2%	7	3%
	Other Southern California Counties	75	15%	40	15%	35	15%
	Total	508	100%	273	100%	235	100%
Q.3 V.4	Number of employees at the subject facility:						
	No Response/Unknown	9	2%	3	1%	6	3%
	1 to 100	201	40%	107	39%	94	40%
	101 to 500	190	37%	116	42%	74	31%
	More than 500	108	21%	47	17%	61	26%
	Total	508	100%	273	100%	235	100%
Q.4 V.5	Total number of employees, including all related and affiliated businesses:						
	No Response/Unknown	93	18%	48	18%	45	19%
	1 to 100	94	19%	48	18%	46	20%
	101 to 500	121	24%	75	27%	46	20%
	More than 500	200	39%	102	37%	98	42%
	Total	508	100%	273	100%	235	100%

Summary of Generator Survey Responses

Compliance Questions

C-4

Cross Reference	Abbreviated Survey Questions	All Respondents		Non-Anonymous Respondents		Anonymous Respondents	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Q.4 V.6	Estimated quantity of hazardous waste routinely generated at the subject facility during 1991: No Response 13.2 to 100 tons 101 to 1,000 tons Greater than 1,000 tons Don't Know Total	9	2%	5	2%	4	2%
		285	56%	145	53%	140	60%
		161	32%	88	32%	73	31%
		44	9%	29	11%	15	6%
		9	2%	6	2%	3	1%
		508	100%	273	100%	235	100%
Q.5 V.7	Was a Source Reduction Evaluation Review and Plan for the subject facility prepared as required by the Hazardous Waste Source Reduction and Management Review Act of 1989? No Yes Total	111	22%	57	21%	54	23%
		397	78%	216	79%	181	77%
		508	100%	273	100%	235	100%
Q.5 V.8	If a Source Reduction Evaluation Review and Plan for the subject facility was prepared, indicate date completed. No Response Prior to September 2, 1991 September 2, 1991 through December 31, 1991 January 1, 1992 through December 31, 1992 January 1, 1993 through October 15, 1993 Total	25	6%	10	5%	15	8%
		251	63%	136	63%	115	64%
		53	13%	30	14%	23	13%
		45	11%	29	13%	16	9%
		23	6%	11	5%	12	7%
		397	100%	216	100%	181	100%

Summary of Generator Survey Responses

Source Reduction Evaluation Review and Plan Questions

Cross Reference	Abbreviated Survey Questions	All Respondents		Non-Anonymous Respondents		Anonymous Respondents	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Q.5 V.9	If a Source Reduction Evaluation Review and Plan for the subject facility was prepared, indicate cost to prepare.						
	No Response	76	19%	38	18%	38	21%
	\$1,000 or Less	47	12%	22	10%	25	14%
	\$1,001 to \$4,999	95	24%	58	27%	37	20%
	\$5,001 to \$9,999	72	18%	41	19%	31	17%
	\$10,000 to \$24,999	56	14%	27	13%	29	16%
	\$25,000 to \$49,999	29	7%	18	8%	11	6%
	\$50,000 to \$99,999	12	3%	6	3%	6	3%
Q.6 V.10	\$100,000 or More	10	3%	6	3%	4	2%
	Total	397	100%	216	100%	181	100%
	Prior to preparation of the Source Reduction Evaluation Review and Plan, did the subject facility have a hazardous waste reduction program in place?						
	No Response	1	0%	0	0%	1	1%
	Yes	260	65%	140	65%	120	66%
	No	134	34%	74	34%	60	33%
	Not Applicable	2	1%	2	1%	0	0%
	Total	397	100%	216	100%	181	100%
Q.7 V.11	How would you evaluate the Department of Toxic Substances Control's performance in assisting your organization to prepare a Source Reduction Evaluation Review and Plan for the subject facility?						
	No Response	2	1%	0	0%	2	1%
	Good	90	23%	45	21%	45	25%
	Fair	76	19%	37	17%	39	22%
	Poor	34	9%	14	6%	20	11%
	Not Applicable (no assistance provided)	195	49%	120	56%	75	41%
	Total	397	100%	216	100%	181	100%

Summary of Generator Survey Responses

Hazardous Waste Source Reduction Implementation Questions

C-6

Cross Reference	Abbreviated Survey Questions	All Respondents		Non-Anonymous Respondents		Anonymous Respondents	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Q.8 V.12	Has the Hazardous Waste Source Reduction and Management Review Act, and associated site review and source reduction planning process requirements, motivated your organization to implement hazardous waste reduction measures over and above what otherwise would have been implemented at the subject facility?						
	No Response	6	2%	2	1%	4	2%
	Yes	222	56%	122	56%	100	55%
	No	169	43%	92	43%	77	43%
	Total	397	100%	216	100%	181	100%
Q.8 V.13	Has the Hazardous Waste Source Reduction and Management Review Act, and associated site review and source reduction planning process requirements, hindered implementation of hazardous waste reduction measures at the subject facility?						
	No Response	12	7%	6	7%	6	8%
	Yes	16	9%	6	7%	10	13%
	No	141	83%	80	87%	61	79%
	Total	169	100%	92	100%	77	100%
Q.9 V.14	To what extent has your organization implemented the hazardous waste reduction measures included in the Source Reduction Evaluation Review and Plan for the subject facility?						
	No Response	4	1%	1	0%	3	2%
	Fully	127	32%	73	34%	54	30%
	Moderately	197	50%	106	49%	91	50%
	Limited	60	15%	31	14%	29	16%
	Not at All	9	2%	5	2%	4	2%
Q.10 V.15	Adjusted for any production level changes, to what extent has implementation of the hazardous waste reduction measures included in the Source Reduction Evaluation Review and Plan for the subject facility contributed to a net reduction in the generation of hazardous waste over and above what otherwise would have been achieved?						
	No Response	6	2%	3	1%	3	2%
	Significant Contribution	58	15%	35	16%	23	13%
	Moderate Contribution	163	41%	85	39%	78	43%
	Minor Contribution	120	30%	66	31%	54	30%
	No Contribution at All	50	13%	27	13%	23	13%
Q.11 V.16	Adjusted for any production level changes, has generation of hazardous waste at the subject facility been reduced?						
	Yes/No Response	456	90%	245	90%	211	90%
	No	52	10%	28	10%	24	10%
	Total	508	100%	273	100%	235	100%

Summary of Generator Survey Responses

Evaluation of Factors Which Have Motivated Hazardous Waste Source Reduction Efforts

Cross Reference	Abbreviated Survey Questions	All Respondents		Non-Anonymous Respondents		Anonymous Respondents	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Q.11	What have been the primary factors which have motivated your hazardous waste source reduction efforts at the subject facility during the past two years?						
V.17	Air Quality Regulations						
	No Response	37	8%	20	8%	17	8%
	Very Important	149	33%	79	32%	70	33%
	Important	156	34%	79	32%	77	36%
	Not Important	59	13%	36	15%	23	11%
	Not Applicable	55	12%	31	13%	24	11%
	Total	456	100%	245	100%	211	100%
V.18	California's Hazardous Waste Source Reduction and Management Review Act						
	No Response	33	7%	18	7%	15	7%
	Very Important	94	21%	51	21%	43	20%
	Important	212	46%	118	48%	94	45%
	Not Important	104	23%	51	21%	53	25%
	Not Applicable	13	3%	7	3%	6	3%
	Total	456	100%	245	100%	211	100%
V.19	Cost of Hazardous Waste Disposal						
	No Response	23	5%	12	5%	11	5%
	Very Important	299	66%	161	66%	138	65%
	Important	124	27%	67	27%	57	27%
	Not Important	8	2%	4	2%	4	2%
	Not Applicable	2	0%	1	0%	1	0%
	Total	456	100%	245	100%	211	100%
V.20	Liabilities Associated With Hazardous Waste Disposal						
	No Response	25	5%	13	5%	12	6%
	Very Important	262	57%	135	55%	127	60%
	Important	141	31%	81	33%	60	28%
	Not Important	23	5%	13	5%	10	5%
	Not Applicable	5	1%	3	1%	2	1%
	Total	456	100%	245	100%	211	100%

Summary of Generator Survey Responses

Evaluation of Factors Which Have Motivated Hazardous Waste Source Reduction Efforts (Continued)

Cross Reference	Abbreviated Survey Questions	All Respondents		Non-Anonymous Respondents		Anonymous Respondents	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Q.11 (Con't)	What have been the primary factors which have motivated your hazardous waste source reduction efforts at the subject facility during the past two years?						
V.21	Water Quality Regulations						
	No Response	35	8%	20	8%	15	7%
	Very Important	131	29%	73	30%	58	27%
	Important	179	39%	95	39%	84	40%
	Not Important	68	15%	36	15%	32	15%
	Not Applicable	43	9%	21	9%	22	10%
	Total	456	100%	245	100%	211	100%
V.22	Worker Health and Safety Regulations						
	No Response	40	9%	22	9%	18	9%
	Very Important	185	41%	107	44%	78	37%
	Important	154	34%	78	32%	76	36%
	Not Important	50	11%	22	9%	28	13%
	Not Applicable	27	6%	16	7%	11	5%
	Total	456	100%	245	100%	211	100%
V.23	Other Factors						
	No Response/Not Applicable	380	83%	210	86%	170	81%
	Very Important	65	14%	31	13%	34	16%
	Important	11	2%	4	2%	7	3%
	Not Important	0	0%	0	0%	0	0%
	Total	456	100%	245	100%	211	100%
Q.12 V.24	Overall, how would you evaluate the California Department of Toxic Substances Control's performance in assisting your organization achieve a net reduction in generation of hazardous waste at the subject facility?						
	No Response	3	1%	1	0%	2	1%
	Good	70	14%	35	13%	35	15%
	Fair	111	22%	57	21%	54	23%
	Poor	57	11%	15	5%	42	18%
	Not Applicable (No assistance provided)	267	53%	165	60%	102	43%
	Total	508	100%	273	100%	235	100%

APPENDIX D

SURVEY OF NON-RESPONDENTS

Appendix D - Survey of Non-Respondents

Appendix D contains a summary of the responses to a survey of 50 non-respondents to the non-anonymous survey. The format for the survey was the same as the format used for the non-anonymous survey, but was administered by telephone. A total of 15 respondents indicated they were not subject to provisions of the Act, resulting in 35 providing responses to the survey. These responses are organized as follows:

- Respondent Profile Questions
- Compliance Questions
- Source Reduction Evaluation Review and Plan Questions
- Hazardous Waste Source Reduction Implementation Questions
- Evaluation of Factors Which Have Motivated Hazardous Waste Source Reduction Efforts

Summary of Generator Survey Responses

Respondent Profile Questions

Cross Reference	Abbreviated Survey Questions	Non-Anonymous Non Respondents	
		Frequency	Percent
Q.1 V.2	Subject facility industry group:		
	No Response/Unknown	0	0%
	Chemicals and Allied Products Manufacturing	1	3%
	Rubber and Miscellaneous Plastics Products Manufacturing	0	0%
	Primary Metals Manufacturing	5	14%
	Fabricated Metal Products Manufacturing, Except Machinery and Equipment	1	3%
	Electronic and Electrical Equipment and Components Manufacturing, Except Computer Equipment	3	9%
	Transportation Equipment Manufacturing	6	17%
	Other Manufacturing	11	31%
	Transportation, Communication, Electric, Gas, Sanitary, and Other Services	5	14%
Q.2 V.3	Miscellaneous Non-Manufacturing Generators, Not Elsewhere Classified	3	9%
	Total	35	100%
	County in which subject facility is located:		
	No Response/Unknown	0	0%
	San Francisco Bay Area Counties	12	34%
	Los Angeles and Orange Counties	16	46%
	Central Valley Counties	1	3%
	Other Northern California Counties	1	3%
	Other Southern California Counties	5	14%
	Total	35	100%
Q.3 V.4	Number of employees at the subject facility:		
	No Response/Unknown	0	0%
	1 to 100	24	69%
	101 to 500	5	14%
	More than 500	6	17%
Q.4 V.5	Total	35	100%
	Total number of employees, including all related and affiliated businesses:		
	No Response/Unknown	1	3%
	1 to 100	12	34%
	101 to 500	7	20%
	More than 500	15	43%
	Total	35	100%

Summary of Generator Survey Responses **Compliance Questions**

Cross Reference	Abbreviated Survey Questions	Non-Anonymous Non Respondents	
		Frequency	Percent
Q.4 V.6	Estimated quantity of hazardous waste routinely generated at the subject facility during 1991:		
	No Response	0	0%
	13.2 to 100 tons	22	63%
	101 to 1,000 tons	7	20%
	Greater than 1,000 tons	2	6%
Q.5 V.7	Don't Know	4	11%
	Total	35	100%
	Was a Source Reduction Evaluation Review and Plan for the subject facility prepared as required by the Hazardous Waste Source Reduction and Management Review Act of 1989?		
Q.5 V.8	No	6	17%
	Yes	29	83%
	Total	35	100%
Q.5 V.8	If a Source Reduction Evaluation Review and Plan for the subject facility was prepared, indicate date completed.		
	No Response	3	10%
	Prior to September 2, 1991	19	66%
	September 2, 1991 through December 31, 1991	1	3%
	January 1, 1992 through December 31, 1992	6	21%
	January 1, 1993 through October 15, 1993	0	0%
	Total	29	100%

Summary of Generator Survey Responses **Source Reduction Evaluation Review and Plan Questions**

Cross Reference	Abbreviated Survey Questions	Non-Anonymous Non Respondents	
		Frequency	Percent
Q.5 V.9	If a Source Reduction Evaluation Review and Plan for the subject facility was prepared, indicate cost to prepare.		
	No Response	18	62%
	\$1,000 or Less	2	7%
	\$1,001 to \$4,999	6	21%
	\$5,001 to \$9,999	0	0%
	\$10,000 to \$24,999	2	7%
	\$25,000 to \$49,999	1	3%
	\$50,000 to \$99,999	0	0%
Q.6 V.10	\$100,000 or More	0	0%
	Total	29	100%
	Prior to preparation of the Source Reduction Evaluation Review and Plan, did the subject facility have a hazardous waste reduction program in place?		
	No Response	1	3%
	Yes	19	66%
	No	6	21%
	Not Applicable	3	10%
	Total	29	100%
Q.7 V.11	How would you evaluate the Department of Toxic Substances Control's performance in assisting your organization to prepare a Source Reduction Evaluation Review and Plan for the subject facility?		
	No Response	0	0%
	Good	4	14%
	Fair	4	14%
	Poor	3	10%
	Not Applicable (no assistance provided)	18	62%
	Total	29	100%

Summary of Generator Survey Responses

Hazardous Waste Source Reduction Implementation Questions

Cross Reference	Abbreviated Survey Questions	Non-Anonymous Non Respondents	
		Frequency	Percent
Q.8 V.12	Has the Hazardous Waste Source Reduction and Management Review Act, and associated site review and source reduction planning process requirements, motivated your organization to implement hazardous waste reduction measures over and above what otherwise would have been implemented at the subject facility?		
	No Response	1	3%
	Yes	14	48%
	No	14	48%
	Total	29	100%
Q.8 V.13	Has the Hazardous Waste Source Reduction and Management Review Act, and associated site review and source reduction planning process requirements, hindered implementation of hazardous waste reduction measures at the subject facility?		
	No Response	1	7%
	Yes	1	7%
	No	12	86%
	Total	14	100%
Q.9 V.14	To what extent has your organization implemented the hazardous waste reduction measures included in the Source Reduction Evaluation Review and Plan for the subject facility?		
	No Response	0	0%
	Fully	10	34%
	Moderately	18	62%
	Limited	1	3%
	Not at All	0	0%
	Total	29	100%
Q.10 V.15	Adjusted for any production level changes, to what extent has implementation of the hazardous waste reduction measures included in the Source Reduction Evaluation Review and Plan for the subject facility contributed to a net reduction in the generation of hazardous waste over and above what otherwise would have been achieved?		
	No Response	1	3%
	Significant Contribution	6	21%
	Moderate Contribution	17	59%
	Minor Contribution	5	17%
	No Contribution at All	0	0%
	Total	29	100%
Q.11 V.16	Adjusted for any production level changes, has generation of hazardous waste at the subject facility been reduced?		
	Yes/No Response	29	100%
	No	0	0%
	Total	29	100%

Summary of Generator Survey Responses **Evaluation of Factors Which Have Motivated Hazardous Waste Source Reduction Efforts**

Cross Reference	Abbreviated Survey Questions	Non-Anonymous Non Respondents	
		Frequency	Percent
Q.11	What have been the primary factors which have motivated your hazardous waste source reduction efforts at the subject facility during the past two years?		
V.17	Air Quality Regulations		
	No Response	0	0%
	Very Important	12	41%
	Important	7	24%
	Not Important	6	21%
	Not Applicable	4	14%
	Total	29	100%
V.18	California's Hazardous Waste Source Reduction and Management Review Act		
	No Response	0	0%
	Very Important	7	24%
	Important	13	45%
	Not Important	9	31%
	Not Applicable	0	0%
	Total	29	100%
V.19	Cost of Hazardous Waste Disposal		
	No Response	0	0%
	Very Important	22	76%
	Important	7	24%
	Not Important	0	0%
	Not Applicable	0	0%
	Total	29	100%
V.20	Liabilities Associated With Hazardous Waste Disposal		
	No Response	0	0%
	Very Important	22	76%
	Important	5	17%
	Not Important	1	3%
	Not Applicable	1	3%
	Total	29	100%

Summary of Generator Survey Responses **Evaluation of Factors Which Have Motivated Hazardous Waste Source Reduction Efforts (Continued)**

Cross Reference	Abbreviated Survey Questions	Non-Anonymous Non Respondents	
		Frequency	Percent
Q.11 (Cont)	What have been the primary factors which have motivated your hazardous waste source reduction efforts at the subject facility during the past two years?		
V.21	Water Quality Regulations		
	No Response	0	0%
	Very Important	10	34%
	Important	10	34%
	Not Important	7	24%
	Not Applicable	2	7%
	Total	29	100%
V.22	Worker Health and Safety Regulations		
	No Response	1	3%
	Very Important	18	62%
	Important	10	34%
	Not Important	0	0%
	Not Applicable	0	0%
	Total	29	100%
V.23	Other Factors		
	No Response/Not Applicable	26	90%
	Very Important	3	10%
	Important	0	0%
	Not Important	0	0%
	Total	29	100%
Q.12 V.24	Overall, how would you evaluate the California Department of Toxic Substances Control's performance in assisting your organization achieve a net reduction in generation of hazardous waste at the subject facility?		
	No Response	0	0%
	Good	5	14%
	Fair	10	29%
	Poor	5	14%
	Not Applicable (No assistance provided)	15	43%
	Total	35	100%

California Environmental Protection Agency

Air Resources Board • Department of Pesticide Regulation • Department of Toxic Substances Control • Integrated Waste Management Board
Office of Environmental Health Hazard Assessment • State Water Resources Control Board • Regional Water Quality Control Boards

Pete Wilson
Governor



James M. Strock
Secretary for Environmental Protection

November 24, 1993

Mr. Kurt R. Sjoberg
State Auditor
660 J Street, Suite 300
Sacramento, California 95814

Dear Mr. Sjoberg:

Thank you for the opportunity to review the draft report on the implementation of the Hazardous Waste Source Reduction and Management Review Act of 1989. This program is one of the most ambitious and successful pollution prevention efforts in the country, and I am pleased that your audit confirms the program is meeting its original goals.

We are quite pleased with your conclusions that this program, which the Department of Toxic Substances Control (Department) has implemented, has resulted in significant actual reductions in the amount of hazardous waste generated in California. This is really the bottom line of the review; that the program has been successful in achieving the desired results, i.e., "generators are implementing source reduction measures as a result of the Act." We are also pleased that you recognize that the Department has been successful in implementing the "various administrative and programmatic provisions of the Act." You were even so supportive as to state "the Department established a good technical and research assistance program."

We also appreciate the recommendations that point out room for the Department to improve on this program. We find it particularly troublesome that approximately 20 percent of the generators who admit being subject to the Act, have not prepared source reduction plans. Clearly this is an area where improvements are desirable. We intend to develop a more effective compliance review process that increases the number of plans reviewed and to establish the database to assist with the technology transfer efforts.

The one major area where we take exception with the audit report findings is the comment that compliance could have easily been improved if the Department had established an initial list of who was subject to the Act and used this as a basis for all call-in and outreach activities. As discussed with your staff little or no information for onsite waste treatment activities was available, at the beginning of the program. To make a "master list" that completely ignored the potential 5,000


Mr. Kurt R. Sjoberg
November 24, 1993
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generators who notified under Tiered Permitting seemed of little value. For future efforts related to this Act, the Department will work towards developing a better list of generators subject to the requirements; making use as much as possible of existing databases.

We also believe that, in regards to efforts to call-in and verify plans and to develop the mandated database, the report should acknowledge the Department was forced to redirect staff from the Senate Bill (SB) 14 program to the implementation of SB 1726 in 1992. This new law provided extremely short time lines to develop regulations, checklists and guidelines. Without the redirection, a significant additional number of documents would have been called-in and reviewed, compliance follow-up would have been more complete, and the database would have been comprehensive by now.

We greatly appreciate the willingness you have shown to work with the Department in conducting this audit. The changes which have been made to the initial draft audit findings have addressed many of the concerns which we expressed at our debriefing meeting on November 22, 1993. Please contact Mr. John D. Dunlap, III, Chief Deputy Director for External Affairs at (916) 324-2471 or Mr. Kim F. Wilhelm, Office of Pollution Prevention and Technology Development, Department of Toxic Substances Control at (916) 322-5347 to discuss further details or concerns.

Sincerely,

A handwritten signature in black ink, reading "James M. Strock". The signature is fluid and cursive, with the first name "James" and last name "Strock" clearly legible.

James M. Strock
Secretary for Environmental Protection

Response to the California Environmental Protection Agency's Comments

Irrespective of the availability of information regarding on-site waste treatment activities, we believe that effectiveness and efficiency of the Department's outreach, call-in, and compliance review activities could be improved by development of an initial master list of generators who, by site, annually ship an amount of routinely generated non-exempted hazardous waste which is above the 13.2 ton level specified by the Act (or 5.5 tons in the case of S.B. 1726).

cc: Members of the Legislature
 Office of the Lieutenant Governor
 State Controller
 Legislative Analyst
 Assembly Office of Research
 Senate Office of Research
 Assembly Majority/Minority Consultants
 Senate Majority/Minority Consultants
 Capitol Press Corps